

Field Manager

File Nos. 84320-2008-F-0007 and
84320-2008-I-0216

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take or loss of habitat identified is exceeded, such incidental take and habitat loss represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The designated utilities must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

D. Reporting Requirements

Upon locating a dead or injured endangered or threatened species within the action area, notification must be made to the Service's Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230. Care should be taken in handling sick or injured endangered or threatened species to ensure effective treatment and be taken for handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by the Service to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. All deaths, injuries, and illnesses of endangered or threatened species, whether associated with project activities or not, will be summarized in an annual report.

Desert Tortoise (Mojave Population)

The following actions should be taken for injured or dead tortoises if directed by the Service:

1. Injured desert tortoises shall be delivered to any qualified veterinarian for appropriate treatment or disposal.
2. Dead desert tortoises suitable for preparation as museum specimens shall be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions.
3. Should no institutions want the desert tortoise specimens, or if it is determined that they are too damaged (crushed, spoiled, etc.) for preparation as a museum specimen, then they may be buried away from the project area or cremated, upon authorization by the Service.
4. The designated utilities shall bear the cost of any required treatment of injured desert tortoises, euthanasia of sick desert tortoises, or cremation of dead desert tortoises.
5. Should sick or injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the Service.

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Moapa Dace

The following action should be taken for injured or dead Moapa dace if directed by the Service: Dead Moapa dace suitable for preparation as museum specimens shall be frozen immediately and provided to the Service's Nevada Fish and Wildlife Office in Las Vegas.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service provides no conservation recommendations at this time.

REINITIATION

This concludes formal consultation on the actions outlined in your requested dated September 27, 2007. As required by 50 CFR § 402.16, reinitiation of formal consultation is required where the discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. In particular, if the State Engineer grants additional water rights beyond the currently permitted 1,000 afy for the Kane Springs Groundwater Development Project, then formal consultation should be reinitiated.

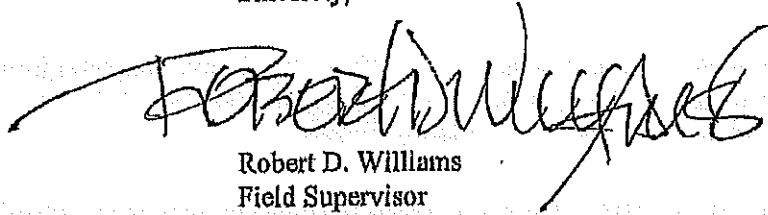
The incidental take statement provided with this Biological Opinion authorizes take of the Moapa dace as may occur in connection with the pumping and transfer of 1,000 afy of groundwater under Phase I of the Project, and implementation of the Monitoring, Management, and Mitigation Plan established under the amended stipulated agreement for the Kane Springs Valley Hydrographic Basin. In June 2008, the LCWD, VWC, and the Service executed a Memorandum of Understanding to ensure additional consultation on this project should additional water rights be appropriated to LCWD and VWC in the Kane Springs Valley Hydrographic Basin (Attachment E). Specifically, the Memorandum requires that the Service reinitiate Section 7 consultation, and, if required, LCWD and VWC will apply for an incidental take permit under Section 10(a)(1)(B) of the Act to cover any take that may occur due to the pumping and transfer of such additional groundwater.

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If we can be of further assistance regarding this consultation, please contact me at
(775) 861-6300, or Janet Bair in the Nevada Fish and Wildlife Office in Las Vegas at
(702) 515-5230.

Sincerely,



Robert D. Williams
Field Supervisor

Attachments

cc:

Lincoln County Treasurer, Pioche, Nevada

Supervisory Biologist - Habitat, Nevada Department of Wildlife, Las Vegas, Nevada

Field Manager, Caliente Field Office, Bureau of Land Management, Caliente, Nevada

Nevada Groundwater Projects Office, Nevada State Office, Bureau of Land Management,

Reno, Nevada

T&E Species Coordinator, Nevada State Office, Bureau of Land Management, Reno, Nevada

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Exhibit 19

AGREEMENT

THIS AGREEMENT ("Agreement") is made as of this 17th day of October 2005, by and between Coyote Springs Investment LLC, a Nevada limited liability company ("CSI"), Lincoln County Water District, a political subdivision of the State of Nevada ("DISTRICT") and Vidler Water Company, Inc., a Nevada corporation ("VIDLER").

Recitals

WHEREAS, CSI is the master developer of that certain planned community commonly known as Coyote Springs located in the Coyote Spring Valley and partially within Clark County, Nevada and partially within Lincoln County, Nevada (the "Project").

WHEREAS, VIDLER and the DISTRICT have entered into an Agreement for the joint development of water resources within the County for the benefit of Lincoln County (DISTRICT/VIDLER).

WHEREAS, VIDLER intends to develop water resources and wells under existing DISTRICT/VIDLER applications.

WHEREAS, DISTRICT/VIDLER desires certain assurances regarding the purchase of quantities of water from DISTRICT/VIDLER by CSI.

WHEREAS, DISTRICT/VIDLER desire that CSI acquire all of the water resources that are developed by DISTRICT/VIDLER in Kane Springs Valley for use within the Project.

WHEREAS, for purposes of this Agreement the parties agree that the water to be delivered will be delivered "at the wellhead" with the necessary right of way permitting in place for any Kane Springs pipelines or other conveyancing structures from the wellhead to the approved transmission pipeline right of way required to physically transport the water ("Deliverable Water").

NOW THEREFORE, CSI, the DISTRICT and VIDLER agree as follows:

1. **KANE WATER:** The DISTRICT, through its water development efforts with VIDLER, will make available to CSI and CSI agrees to purchase all the water available within the Kane Springs Basin ("Kane Water") pursuant to Application Nos. 72218, 72219, 72220 and 72221 filed with the Nevada State Engineer on February 14, 2005 ("Applications").

The DISTRICT/VIDLER shall be responsible for taking the actions necessary to obtain approval of the Applications by the Nevada State Engineer. CSI agrees to utilize and put to beneficial use within the Project the Kane Water prior to or in substitute of using any other water resources that may be available to CSI.

The initial purchase price for Kane Water shall be Six Thousand Fifty Dollars (\$6,050.00) per acre foot for the first year following the date of this Agreement. The purchase price for Kane Water shall increase by ten percent (10%) each year on the anniversary of this Agreement. Within sixty (60) days of the date of approval by the Nevada State Engineer of all or any portion of the Applications, the purchase price for that portion of the Kane Water approved for appropriation shall be paid in full by CSI.

Upon payment in full of the purchase price of Kane Water, the DISTRICT and VIDLER will convey the Kane Water by Water Rights Deed to CSI and will partially assign to CSI certain rights and delegate to CSI certain obligations related to the underlying water right permit(s). Further, the DISTRICT/VIDLER shall deliver the well or wells in good condition and ready for installation of all production equipment without the need of any additional work prior to such installation.

Notwithstanding any provision to the contrary in this Section, the DISTRICT/VIDLER acknowledge and agree that CSI shall be entitled to continue use of its own water rights for existing construction, development and customer uses until such time as the necessary Kane Springs pipeline and related appurtenances are constructed between the well and the water treatment facility within the Project.

CSI shall use its best efforts to design and construct the Kane Springs pipeline and related appurtenances as soon as practicable after issuance of permits pursuant to the Applications.

2. **CSI OBLIGATIONS:** Upon conveyance of the water as provided for herein, CSI will acknowledge and accept any and all responsibilities and obligations, including groundwater monitoring requirements, set forth in or associated with the underlying water right permit(s). Subject to the immediately preceding paragraph, CSI agrees to utilize and put to beneficial use within the Project, the Kane Water prior to using any other water resources or in substitution of any water resources that may then be available to CSI.

Each delivery of Water shall be conveyed to CSI together with the rights to utilize the production well upon CSI'S payment of the entire purchase price for each delivery of water. Any and all costs associated with pumping, transporting and/or treating the water is the responsibility of CSI.

All conveyances under this Agreement shall be in form reasonably suitable to counsel for all parties hereto. In addition to the water rights conveyed under this Agreement, DISTRICT and VIDLER agree to provide to CSI the non-exclusive right to utilize all easements and rights-of-way held by the DISTRICT relating to the Kane Springs pipeline right-of-way and the water rights to be conveyed pursuant to the terms of this Agreement.

3. **DISTRICT APPROVAL:** All of the terms and conditions of this Agreement are expressly made subject to the prior approval of the LINCOLN COUNTY WATER DISTRICT and this Agreement shall not be enforceable or of any force and effect unless and until the same is expressly approved by the DISTRICT.

CSI and the DISTRICT expressly understand and agree that the water rights that are the subject of this Agreement shall be used within the Project Area, as defined herein, and provided to customers whether through a singular GID for the Project or a jurisdictional public utility serving the entire Project.

4. **DUTY OF COOPERATION:** The DISTRICT/VIDLER shall cooperate with CSI in obtaining any and all rights-of-ways that might be required from the Bureau of Land Management ("BLM") to extend the Kane Springs pipeline right-of-way being obtained by DISTRICT/VIDLER to a water treatment plant within the Project, regardless of whether such right-of-way follows the Kane Springs Road and Highway 93 to the west and south or crosses lands leased by CSI from the BLM, or some other route as required by BLM to create the least environmental impact. It is understood and agreed that "deliverable water" as that term is defined herein and the obligation to purchase the Kane Springs water shall not be delayed by virtue of the need to "extend" the Kane Springs pipeline beyond what is currently submitted for NEPA clearances.

5. **DISPUTE RESOLUTION:** If a dispute between the parties arises with respect to the rights or obligations under this Agreement, or as a result of this Agreement, and such dispute cannot be resolved in an informal fashion, the parties shall submit their dispute to arbitration before a single arbitrator in accordance with the rules of arbitration of the State of Nevada. The parties agree that such arbitration shall be held in Carson City, Nevada. The decision of the Arbitrator shall be final and binding upon the parties, and may be enforced by any court having jurisdiction therefor. Each party shall bear its own costs, including attorney's fees, and shall share equally in the arbitration costs and fees, unless otherwise assessed by the arbitrator. The prevailing party in any dispute shall be entitled to an award of reasonable attorney's fees and costs in addition to any other relief awarded. The parties hereby specifically waive their right to file any action at law or in equity arising from any implementation, interpretation or performance of this agreement or the subject of this agreement except as specifically provided herein. This provision requiring arbitration constitutes a specific waiver of the right to trial by jury or to proceed in any Nevada or Federal District Court or in the courts of any other state, except with respect to the right to seek enforcement of or compliance with this agreement to submit to arbitration.

6. **FORCE MAJEURE:** No party to this Agreement shall be considered to be in default in the performance of any obligations under this Agreement when a failure of performance shall be due to uncontrollable forces. The Term "uncontrollable force" shall mean any cause beyond the control of the Party unable to perform such obligation, including but not limited to failure or threat of failure of facilities, flood, earthquake, storm, fire, lighting, and other natural catastrophes, epidemic, war, civil disturbance or disobedience, strike, labor dispute, labor or material shortage, sabotage, restraint by order of a court or regulatory body or agency of competent jurisdiction, and any non-action by, or failure to obtain the necessary authorization or approvals from, a Federal governmental agency or authority, which by the exercise of due diligence and foresight such Party could not reasonably have been expected to overcome. Nothing contained herein shall be construed to require a Party to settle any strike or labor dispute in which it is involved or accede to claims or conditions which it believes to be adverse to its business or other interests.

7. **TERM:** The term of this Agreement shall commence on the date first written above and shall terminate December 31, 2012.

8. **DEFAULT:** In the event that CSI fails to pay the purchase price or fails to make any other payment as required hereunder then and in that event the DISTRICT/VIDLER shall provide CSI with a 30 day written notice of default specifying the nature and extent of the default and allowing CSI 30 days to rectify the default. In the event that the default is not cured within the 30 days specified in the written notice then and in that event this Agreement shall be terminated and no longer of any force or effect.

9. **NOTICES:** No notice, request, demand, instruction or other document to be given hereunder to any Party shall be effective for any purpose unless personally delivered to the person at the appropriate address set forth below (in which event such notice shall be deemed effective only upon such

delivery) delivered by air courier next-day delivery (e.g., Federal Express), or delivered by U.S. mail, sent by registered or certified mail, return receipt requested as follows:

Coyote Springs Investment LLC: 6600 N. Wingfield Parkway
Sparks, Nevada 89436
Attn: General Counsel

Lincoln County Water District: PO Box 307
Pioche, NV 89043

Vidler Water Company, Inc.: 704 W. Nye Lane, Suite 201
Carson City, NV 89703

10. **ENTIRE AGREEMENT:** This Agreement sets forth the entire agreement of the parties. It shall not be altered, amended or modified except by a written agreement entered into by the parties hereto.

11. **ATTORNEYS' FEES:** In the event of any action or proceeding, including an arbitration brought by either Party against the other under this Agreement, the prevailing Party shall be entitled to recover all costs and expenses including the actual fees of its attorneys incurred for prosecution, defense, consultation or advice in such action or proceeding.

12. **COUNTERPART:** This Agreement and any other agreement (or document) delivered pursuant hereto may be executed in one or more counterparts and by different Parties in separate counterparts. All of such counterparts shall constitute one and the same agreement and shall become effective when one or more counterparts of this Agreement have been signed by each Party and delivered to the other Parties.

13. **ASSIGNMENT:** None of the parties shall have the right to assign this Agreement and its rights under it, without the express written consent of the other party, which consent will not be unreasonably withheld.

14. **PATRIOT ACT:** Each party represents for itself that it is not on the Specially Designated National & Blocked Persons List of the Office of Foreign Assets Control of the United States Treasury Department and is not otherwise blocked or banned by any foreign assets office rule or any other law or regulation, including the USA Patriot Act or Executive Order 13224.

15. **INTERPRETATION:** This Agreement shall be construed and interpreted in accordance with the laws of the State of Nevada. If any term, covenant, condition, or provision of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first written above.

CSI

COYOTE SPINGS INVESTMENT, LLC
a Nevada limited liability company

By: 

Its: Manager

VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 

Its: Chief Operating Officer

DISTRICT

LINCOLN COUNTY WATER DISTRICT

By: 

Ronda Hornbeck, Chairwoman

Attest: 

Ken Dixon

Exhibit 20

FIRST AMENDMENT OF AGREEMENT

THIS FIRST AMENDMENT OF AGREEMENT ("Amendment") is made as of November 11, 2008, by and among Coyote Springs Investment LLC, a Nevada limited liability company ("CSI"), Lincoln County Water District, a political subdivision of the State of Nevada ("District"), and Vidler Water Company, Inc., a Nevada corporation ("Vidler"), with reference to that certain Agreement by and among CSI, the District and Vidler dated October 17, 2005 ("Agreement"). Terms with initial capital letters used herein but not otherwise defined herein shall have the same meaning as set forth in the Agreement.

Recitals

WHEREAS, the Agreement provided for the sale by the District and Vidler, and the purchase by CSI of certain water rights appropriated within the Kane Springs Valley Basin (Basin 206) ("KSV Basin") upon the terms and conditions set forth in the Agreement.

WHEREAS, subsequent to the date of Agreement the District and Vidler filed Application Nos. 74147, 74148, 74149 and 74150 to appropriate water from within the KSV Basin (the "Additional Applications").

WHEREAS, the District and Vidler filed a right of way application with the Bureau of Land Management seeking authorization for the Kane Springs wells, pipelines and all related appurtenances which was assigned serial file number N-79742 ("Right of Way").

WHEREAS, CSI, the District and Vidler desire to amend certain terms and conditions of the Agreement.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, the District and Vidler mutually agree as follows:

1. The first paragraph of Section 1 of the Agreement is hereby amended in its entirety to read as follows:

The District, through its water development efforts with Vidler, will make available to CSI and CSI agrees to purchase all of the water rights available within the Kane Springs Basin ("Kane Water") pursuant to Permit Nos. 72218, 72219, 72220 and 72221 issued by the State Engineer on May 31, 2007 ("Permits") and the Additional Applications.

2. New Sections 1(a) and 1(b) are hereby added to the Agreement immediately following the last paragraph of Section 1 of the Agreement which reads as follows:

1(a). Notwithstanding any provision to the contrary in the third paragraph of Section 1 above but provided that the Right of Way is issued by BLM prior to October 17, 2009 the payment provisions for the water appropriated under the Permits (the "Initial Kane Water") are set forth below:

(i) The purchase price for the Initial Kane Water is \$8,052,550.00 (\$8,052.55/ac-ft multiplied by 1,000 afa) and provided that the BLM has issued the Right of Way Grant on or before December 31, 2008 the purchase price shall be paid in accordance with the payment schedule set forth on Exhibit A attached hereto and incorporated herein ("Payment Schedule"). In the event BLM has not issued the Right of Way Grant by December 31, 2008 the Payment Schedule shall be modified to provide that the initial \$250,000 payment ("Initial Payment") shall be due and payable within in ten (10) days after the date on which the Right of Way Grant is issued and the Payment Schedule shall remain unmodified and in full force and effect in all other respects. Further, in the event the BLM has not issued the Right of Way Grant by February 1, 2009, the February 28, 2009 payment due date shall be delayed one day for each day of delay in the issuance of the Right of Way Grant.

(ii) Concurrently with the delivery of the initial payment CSI shall deliver to LCWD/Vidler a promissory note substantially in the form of Exhibit B attached hereto and incorporated herein ("Note").

(iii) At any time prior to the Maturity Date (as defined in the Note) but after reimbursement of project expenses advanced by Vidler and approved by LCWD, LCWD shall have the right, in its sole discretion, to elect to retain ownership of its portion of the Initial Kane Water and convert that portion of the unpaid principal balance due under the Note to which LCWD is entitled to a commodity charge payable on an annual basis. Any such annual commodity charge shall be capped at a maximum rate of \$605.00 per acre-foot. In the event LCWD elects to exercise this right LCWD shall notify CSI in writing not less than 90 - days prior to the Maturity Date.

1(b). Notwithstanding any provision to the contrary in the fourth paragraph of Section 1 above, the Initial Kane Water shall be conveyed by Water Rights Deed to CSI and certain rights associated with the Permits shall be assigned and certain obligations associated with the Permits shall be delegated to CSI in accordance with the following schedule:

- a. February 28, 2009 - 80 afa and eight percent (8%) of Permit rights and obligations;
- b. December 31, 2009 - 160 afa and sixteen percent (16%) of Permit rights and obligations;
- c. December 31, 2010 - 760 afa and seventy-six percent (76%) of Permit rights and obligations;
- d. At the time of any unscheduled payment of principal prior to the Maturity Date - one acre-foot (1 afa) and one percent (1%) of the Permit rights and obligations for each \$10,065.69 principal payment received from CSI together with accrued and unpaid interest.

CSI shall pay the real property taxes due in connection with each respective conveyance.

4. This Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.

5. If any term, covenant, condition or provision of this Amendment is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the terms, covenants, conditions and provisions shall remain of full force and effect and in no way affected, impaired or invalidated.

6. Except as expressly set forth in this Amendment the Agreement remains unmodified and in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the date first written above.

CSI:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: [Signature]
Harvey Whittemore, Manager

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: [Signature]
George T. Rowe, Chairman

Attest: [Signature]
Ken Dixon
WADE Poulson

VIDLER:

VIDLER WATER COMPANY, INC.
a Nevada corporation

By: [Signature]
Its: President

Exhibit A

Initial Kane Water Payment Schedule

COYOTE SPRINGS INVESTMENT

Kene Springs Purchase: Financing proposal

	Oct 31 2008	Dec 31 2008	Feb 28 2009	March 31 2009	June 30 2009	Sept 30 2009	Dec 31 2009	March 31 2010	June 30 2010	Sept 30 2010	Dec 31 2010	Total
Interest rate	10%											
Total Acres - Feet	1,000											
Price per acre - foot	\$ 8,053											
Total Purchase Price	\$ 8,052,560											
Initial Deposit on Closing		250,000										
Interest due at Feb 28, 2008			130,043									
Principal Payment			555,255									
Principal at 2.28.09	7,247,295											
Quarterly Interest payments				60,394	181,182	181,182	181,182					
Principal Payment							1,610,510					
Principal at 1.1.10	5,636,785											
Quarterly Interest payments								140,920	140,920	140,920	140,920	
Final Principal repayment											5,835,785	
Total Cash Payments	-	250,000	685,298	60,394	181,182	181,182	1,791,692	140,920	140,920	140,920	5,777,705	9,350,212
												8,052,560
												1,297,652
												Principal
												Interest
2008 Total	250,000											
2009 Total	2,899,749											
2010 Total	8,200,464											
	<u>9,350,212</u>											

Payment Schedule

Exhibit B
Form of Promissory Note

PROMISSORY NOTE

\$7,802,550.00

Sparks, Nevada

January 7, 2009

For valuable consideration, Coyote Springs Investment LLC, a Nevada limited liability company ("Promisor"), does hereby promise to pay to the order of Lincoln County Water District, a political subdivision of the State of Nevada, and Vidler Water Company, a Nevada corporation (collectively, the "Promisee"), the principal sum of Seven Million Eight Hundred Two Thousand Five Hundred Fifty and Zero One-Hundredths Dollars (\$7,802,550.00), together with interest thereon, from the date hereof, at the rate of ten percent (10%) per annum ("Base Rate"). Interest payments and principal payments due under this Note shall be payable in accordance with the payment schedule attached hereto and incorporated herein ("Payment Schedule"). All of the outstanding principal and interest due, but not yet paid, under this Note shall be due and payable on December 31, 2010 ("Maturity Date"). All payments under this Note shall be applied first to interest on the unpaid principal and then to principal.

Both principal and interest are payable at the office of Promisee, at 3480 G. S. Richards, Blvd., Suite 101, Carson City, Nevada 89703, or at such place as the holder hereof may from time to time designate in writing.

- Promisor may prepay this Note in full or in part without penalty or premium.

Should any event of default, as defined below, occur, the whole sum of principal and interest hereunder shall, without notice, immediately become due at the option of the holder hereof. Any and all of the following shall constitute an event of default hereunder:

- (a) default in payment of any installment of principal or interest hereunder;
- (b) default in performance of any obligation contained herein or in the purchase Agreement.

In the event of default under this Note, interest shall be payable on the whole of the sum outstanding at the rate of fifteen percent (15%) per annum (the "Agreed Rate") for the duration of such default, whether or not the holder hereof has exercised its option to accelerate the maturity of this Note and declare the entire unpaid principal indebtedness due and payable.

Promisor and all others who may become liable for the payment of all or any part of this obligation do hereby severally waive presentment for payment, protest and demand, notice of protest, demand and dishonor, and nonpayment of this Note and expressly agree that the maturity of this Note or any payment hereunder may be extended from time to time, at the option of the holder hereof, without in any way affecting the liability of each. Any such extension may be made without notice to any of the parties and without discharging their liability.

Promisor promises to pay all costs incurred in collection and/or enforcement of this Note or any part thereof or otherwise in connection herewith, including, but not limited to, reasonable attorneys' fees, and,

in the event of court action, all costs and such additional sums and attorneys' fees as the court may adjudge reasonable.

The obligations of any party liable for the payment of all or any part of this obligation shall be joint and several.

If any term, provision, covenant or condition of this Note, or any application thereof, should be held by a court of competent jurisdiction to be invalid, void, or unenforceable, all provisions, covenants and conditions of this Note and all applications thereof not held invalid, void or unenforceable, shall continue in full force and effect and shall in no way be affected, impaired or invalidated thereby.

The laws of the State of Nevada shall govern the validity, construction, performance and effect of this Note. Any action to enforce Promisor's obligations hereunder may be brought in any court of competent jurisdiction in the State of Nevada, and Promisor hereby consents to the jurisdiction of Nevada courts over it.

PROMISOR:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: 

Harvey Whittemore, Manager

COYOTE SPRINGS INVESTMENT
Kane Springs Purchase; Financing proposal

	Oct 31 2008	Dec 31 2008	Feb 28 2009	March 31 2009	June 30 2009	Sept 30 2009	Dec 31 2009	March 31 2010	June 30 2010	Sept 30 2010	Dec 31 2010	Total
Interest rate	10%											
Total Area - Foot	1,000											
Price per acre - foot	\$ 8,053											
Total Purchase Price	\$ 8,052,550											
Initial Deposit on Closing		250,000										
Interest due at Feb 28, 2009			130,043									
Principal Payment			555,255									
Principal at 2.28.09	7,247,295											
Quarterly Interest payments				60,394	181,182	181,182	181,182					
Principal Payment							1,510,510					
Principal at 1.1.10	5,636,785											
Quarterly Interest payments								140,920	140,920	140,920	140,920	
Final Principal repayment											6,638,765	
Total Cash Payments	-	250,000	685,298	60,394	181,182	181,182	1,791,692	140,920	140,920	140,920	5,777,785	9,350,212
												8,052,550
												1,297,662
												Principal
												Interest
2008 Total	250,000											
2009 Total		2,699,749										
2010 Total			6,200,464									
			<u>9,350,212</u>									

Payment Schedule

Exhibit 21

SECOND AMENDMENT OF AGREEMENT

THIS SECOND AMENDMENT OF AGREEMENT ("Amendment") is made as of July 31, 2009, by and among Coyote Springs Investment LLC, a Nevada limited liability company ("CSI"), Lincoln County Water District, a political subdivision of the State of Nevada ("District"), and Vidler Water Company, Inc., a Nevada corporation ("Vidler"), with reference to that certain Agreement by and among CSI, the District and Vidler dated October 17, 2005 ("Purchase Agreement"), as amended by that certain First Amendment of Agreement by and among CSI, District and Vidler dated November 11, 2008 ("First Amendment"). The Purchase Agreement and the First Amendment are collectively referred to herein as the "Agreement." Terms with initial capital letters used herein but not otherwise defined herein shall have the same meaning as set forth in the Agreement.

Recitals

WHEREAS, the Agreement provided for the sale by the District and Vidler, and the purchase by CSI of certain water rights appropriated within the Kane Springs Valley Basin (Basin 206) ("KSV Basin") upon the terms and conditions set forth in the Agreement.

WHEREAS, subsequent to the date of the First Amendment the District has elected to retain ownership of a portion of the Initial Kane Water (the "District Portion").

WHEREAS, subsequent to the date of the First Amendment the BLM issued Right of Way Grant N-79742 ("Grant") to the District authorizing the construction, operation and maintenance of the Kane Springs Valley Groundwater Development Project.

WHEREAS, the purchase price for the Initial Kane Water is \$8,052,550.00 (\$8,052.55 multiplied by 1,000 afa).

WHEREAS, under the Agreement and the First Amendment, CSI is obligated to the District and Vidler in the principal amount of \$7,802,550.00 pursuant to a promissory noted dated January 7, 2009 ("Note").

WHEREAS, Vidler's portion of the outstanding principal balance is \$5,764,958.00 ("Initial Vidler Balance"), and that the District's portion of the outstanding principal balance is \$2,037,592.00 ("District Balance").

WHEREAS, the District has elected to retain ownership of its prorata portion of the Initial Kane Water corresponding to the District Balance, or 253.04 afa.

WHEREAS, CSI, the District and Vidler desire to amend the Agreement and Note in order to provide that no payments of principal or interest shall be made LCWD in connection with the District Balance.

WHEREAS, CSI, the District and Vidler desire to amend certain terms and conditions of the Note and the Agreement.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, the District and Vidler mutually agree as follows:

1. Section 1(a) of the Agreement is hereby amended in its entirety to read as follows:

1(a). The outstanding principal balance due under the Note is hereby reduced subtracting the amount of the District Balance and increased by the amount of \$288,247.00 (interest accrued on the Initial Vidler Balance but unpaid as of June 30, 2009) for an outstanding principal balance under the Note in the amount of \$6,053,205.90 ("Vidler Balance") as of the date of this Agreement. Payment of principal and interest due under the Note shall be paid to Vidler in accordance with the Kane Springs Payment Schedule attached hereto as Exhibit A and incorporated herein.

Concurrently with the delivery of this Amendment, the parties hereto shall execute and deliver an Amended and Restated Promissory Note, fully replacing the Note substantially in the form of Exhibit B attached hereto and incorporated herein.

5. Section 1(b) of the Agreement is hereby amended in its entirety to read as follows:

1(b). Notwithstanding any provision to the contrary contained in the Agreement,, the Vidler portion of the Initial Kane Water (746.96 afa) ("Vidler Portion") shall be conveyed by Water Rights Deed to CSI and certain rights associated with the Permits shall be assigned and certain obligations associated with the Permits shall be delegated to CSI in accordance with the following schedule:

- a. April 1, 2010 - 149.39 afa and twenty percent (20% of the Vidler Portion) of Permit rights and obligations;
- b. April 1, 2011 - 283.84 afa and thirty-eight percent (38% of the Vidler Portion) of Permit rights and obligations;
- c. April 1, 2012 - 313.73 afa and forty-two percent (42% of the Vidler Portion) of Permit rights and obligations;
- d. At the time of any unscheduled payment of principal prior to the Maturity Date - one acre-foot (1 afa) and one percent (1.00%) of the Permit rights and obligations for each \$75,665.07 principal

payment received from CSI together with accrued and unpaid interest.

CSI shall pay the real property transfer taxes due in connection with each respective conveyance.

6. A new Section 1(c) is hereby added to the Agreement immediately following Section 1(b) which reads as follows:

1(c). In consideration of the District dedicating the District Portion to serve CSI's development in the Coyote Spring Valley ("Coyote Spring Development"), CSI shall pay the District a monthly standby fee in the amount of \$15,151.52 ($\$2,037,592.00 \times 8.923\% \pm$ per annum based on a 360 day year). The monthly standby fee shall be reduced to \$10,188 ($\$2,037,592.00 \times 6\% \pm$ per annum based on a 360 day year) concurrently with the payment in full of the Vidler Balance. The standby fee shall be paid on the first day of each month commencing on August 1, 2009, and continuing on the first day of each month thereafter on an acre-foot basis until such time as the water is placed to beneficial use within the Coyote Spring Development.

7. A new paragraph 1(d) is hereby added to the Agreement immediately following Section 1(c) above, which reads as follows:

1(d). CSI agrees to dedicate all of the Vidler Portion purchased from Vidler, except for 50 afa which CSI is obligated to dedicate to the United State Fish and Wildlife Service ("FWS") for the benefit of the Moapa dace pursuant to the Muddy River MOA, to the District in consideration of the District's commitment to use such water to serve the Coyote Springs Development.

8. A new paragraph is hereby added to Section 4 of the Agreement immediately following the paragraph constituting Section 4 which reads as follows:

CSI and the District shall cooperate in determining the appropriate mechanism to allow CSI to be reimbursed for the amounts paid to Vidler for the acquisition of the Vidler Portion when CSI dedicates the Vidler Portion, either in whole or in part from time to time, to the District.

9. This Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.


10. If any term, covenant, condition or provision of this Amendment is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the terms, covenants, conditions and provisions shall remain of full force and effect and in no way affected, impaired or invalidated.

11 Except as expressly set forth in this Amendment the Agreement remains unmodified and in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the date first written above.

CSI:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: 
Harvey Whittemore, Manager

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Ronda Hornbeck, Chairman

Attest: 
general manager

VIDLER:

VIDLER WATER COMPANY, INC.
a Nevada corporation

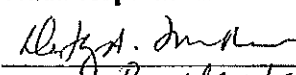
By: 
Its: President

Exhibit A**Initial Kane Water Payment Schedule**

Year	Month	Amount	Balance	Interest	Principal	Payment
2020	1					
2020	2					
2020	3					
2020	4					
2020	5					
2020	6					
2020	7					
2020	8					
2020	9					
2020	10					
2020	11					
2020	12					
2021	1					
2021	2					
2021	3					
2021	4					
2021	5					
2021	6					
2021	7					
2021	8					
2021	9					
2021	10					
2021	11					
2021	12					
2022	1					
2022	2					
2022	3					
2022	4					
2022	5					
2022	6					
2022	7					
2022	8					
2022	9					
2022	10					
2022	11					
2022	12					
2023	1					
2023	2					
2023	3					
2023	4					
2023	5					
2023	6					
2023	7					
2023	8					
2023	9					
2023	10					
2023	11					
2023	12					
2024	1					
2024	2					
2024	3					
2024	4					
2024	5					
2024	6					
2024	7					
2024	8					
2024	9					
2024	10					
2024	11					
2024	12					
2025	1					
2025	2					
2025	3					
2025	4					
2025	5					
2025	6					
2025	7					
2025	8					
2025	9					
2025	10					
2025	11					
2025	12					
2026	1					
2026	2					
2026	3					
2026	4					
2026	5					
2026	6					
2026	7					
2026	8					
2026	9					
2026	10					
2026	11					
2026	12					
2027	1					
2027	2					
2027	3					
2027	4					
2027	5					
2027	6					
2027	7					
2027	8					
2027	9					
2027	10					
2027	11					
2027	12					
2028	1					
2028	2					
2028	3					
2028	4					
2028	5					
2028	6					
2028	7					
2028	8					
2028	9					
2028	10					
2028	11					
2028	12					
2029	1					
2029	2					
2029	3					
2029	4					
2029	5					
2029	6					
2029	7					
2029	8					
2029	9					
2029	10					
2029	11					
2029	12					
2030	1					
2030	2					
2030	3					
2030	4					
2030	5					
2030	6					
2030	7					
2030	8					
2030	9					
2030	10					
2030	11					
2030	12					
2031	1					
2031	2					
2031	3					
2031	4					
2031	5					
2031	6					
2031	7					
2031	8					
2031	9					
2031	10					
2031	11					
2031	12					
2032	1					
2032	2					
2032	3					
2032	4					
2032	5					
2032	6					
2032	7					
2032	8					
2032	9					
2032	10					
2032	11					
2032	12					
2033	1					
2033	2					
2033	3					
2033	4					
2033	5					
2033	6					
2033	7					
2033	8					
2033	9					
2033	10					
2033	11					
2033	12					
2034	1					
2034	2					
2034	3					
2034	4					
2034	5					
2034	6					
2034	7					
2034	8					
2034	9					
2034	10					
2034	11					
2034	12					
2035	1					
2035	2					
2035	3					
2035	4					
2035	5					
2035	6					
2035	7					
2035	8					
2035	9					
2035	10					
2035	11					
2035	12					
2036	1					
2036	2					
2036	3					
2036	4					
2036	5					
2036	6					
2036	7					
2036	8					
2036	9					
2036	10					
2036	11					
2036	12					
2037	1					
2037	2					
2037	3					
2037	4					
2037	5					
2037	6					
2037	7					
2037	8					
2037	9					
2037	10					
2037	11					
2037	12					
2038	1					
2038	2					
2038	3					
2038	4					
2038	5					
2038	6					
2038	7					
2038	8					
2038	9					
2038	10					
2038	11					
2038	12					
2039	1					
2039	2					
2039	3					
2039	4					
2039	5					
2039	6					
2039	7					
2039	8					
2039	9					
2039	10					
2039	11					
2039	12					
2040	1					
2040	2					
2040	3					
2040	4					
2040	5					
2040	6					
2040	7					
2040	8					
2040	9					
2040	10					
2040	11					
2040	12					
2041	1					
2041	2					
2041	3					
2041	4					
2041	5					
2041	6					
2041	7					
2041	8					
2041	9					
2041	10					
2041	11					
2041	12					
2042	1					
2042	2					
2042	3					
2042	4					
2042	5					
2042	6					
2042	7					
2042	8					
2042	9					
2042	10					
2042	11					
2042	12					
2043	1					
2043	2					
2043	3					
2043	4					
2043	5					
2043	6					
2043	7					
2043	8					
2043	9					
2043	10					
2043	11					
2043	12					
2044	1					
2044	2					
2044	3					
2044	4					
2044	5					
2044	6					
2044	7					
2044	8					
2044	9					
2044	10					
2044	11					
2044	12					
2045	1					
2045	2					

Coyote Springs Investment, LLC
Kane Springs Payment Schedule

Vidler Balance	5,764,958.00
Accrued Interest	288,247.90
Vidler Balance	<u>6,053,205.90</u>
Lincoln Co Balance	<u>2,037,592.00</u>
Total Balance	<u>8,090,797.90</u>
Vidler Interest Rate	10%
Lincoln Co Interest Rate	8.923%

Month	Vidler Payments			Lincoln Co Payments	Total Payments
	Interest	Principal	Total		
Aug-09			-	15,151.52	15,151.52
Sep-09	151,330.15		151,330.15	15,151.52	166,481.66
Oct-09			-	15,151.52	15,151.52
Nov-09			-	15,151.52	15,151.52
Dec-09	151,330.15		151,330.15	15,151.52	166,481.66
Jan-10			-	15,151.52	15,151.52
Feb-10			-	15,151.52	15,151.52
Mar-10	151,330.15		151,330.15	15,151.52	166,481.66
Apr-10		1,360,510.00	1,360,510.00	15,151.52	1,375,661.52
May-10			-	15,151.52	15,151.52
Jun-10	117,317.40		117,317.40	15,151.52	132,468.91
Jul-10			-	15,151.52	15,151.52
Aug-10			-	15,151.52	15,151.52
Sep-10	117,317.40		117,317.40	15,151.52	132,468.91
Oct-10			-	15,151.52	15,151.52
Nov-10			-	15,151.52	15,151.52
Dec-10	117,317.40		117,317.40	15,151.52	132,468.91
Jan-11			-	15,151.52	15,151.52
Feb-11			-	15,151.52	15,151.52
Mar-11	117,317.40		117,317.40	15,151.52	132,468.91
Apr-11		2,574,961.00	2,574,961.00	15,151.52	2,590,112.52
May-11			-	15,151.52	15,151.52
Jun-11	52,943.37		52,943.37	15,151.52	68,094.89
Jul-11			-	15,151.52	15,151.52
Aug-11			-	15,151.52	15,151.52
Sep-11	52,943.37		52,943.37	15,151.52	68,094.89
Oct-11			-	15,151.52	15,151.52
Nov-11			-	15,151.52	15,151.52
Dec-11	52,943.37		52,943.37	15,151.52	68,094.89
Jan-12			-	15,151.52	15,151.52
Feb-12			-	15,151.52	15,151.52
Mar-12	52,943.37		52,943.37	15,151.52	68,094.89
Apr-12		2,117,734.90	2,117,734.90	15,151.52	2,132,886.42
	<u>1,135,033.52</u>	<u>6,053,205.90</u>	<u>7,188,239.42</u>	<u>500,000.07</u>	<u>7,688,239.49</u>

Exhibit B

Form of Amended and Restated Promissory Note

THIS PROMISSORY NOTE (the "Note") is made this 1st day of October, 2020, by and between the undersigned Lender, on the one hand, and the undersigned Borrower, on the other hand.

WHEREAS, the Borrower desires to borrow from the Lender the sum of \$10,000.00 (Ten Thousand Dollars) for the purpose of [redacted]; and

WHEREAS, the Lender is willing to lend the sum of \$10,000.00 to the Borrower on the terms and conditions set forth herein;

IT IS AGREED that the Borrower shall pay to the Lender the sum of \$10,000.00, with interest, as hereinafter provided.

The principal sum of \$10,000.00 shall be paid to the Lender in full on or before the 1st day of November, 2020.

Interest on the principal sum shall be calculated at the rate of 10% per annum, compounded annually, from the date of the making of this Note until the date of payment in full.

The Borrower shall pay to the Lender the interest on the principal sum on or before the 1st day of November, 2020.

IN WITNESS WHEREOF, the Lender and the Borrower have hereunto set their hands and seals the day and date first above written.

 [Signature of Lender]
 [Name of Lender]

 [Signature of Borrower]
 [Name of Borrower]

AMENDED AND RESTATED PROMISSORY NOTE

THIS AMENDED AND RESTATED PROMISSORY NOTE ("Amendment") is effective as of July 1, 2009, by and among Coyote Springs Investment LLC, a Nevada limited liability company ("CSI"), Lincoln County Water District, a political subdivision of the State of Nevada ("District"), and Vidler Water Company, a Nevada corporation ("Vidler"), with reference to that certain January 7, 2009 Promissory Note executed by CSI, as Promisor, the District and Vidler, each as a Promisee and collectively, the Promisee ("Note"). Terms with initial capital letters used herein but not otherwise defined herein shall have the same meaning as set forth in the Second Amendment (as defined below).

Recitals

WHEREAS, Promisor executed and delivered the Note to Promisee in the principal amount \$7,802,550.00.

WHEREAS, CSI, the District and Vidler entered into that certain Second Amendment of Agreement ("Second Amendment") of even date herewith wherein the parties agreed to amend and restate the Note to be consistent with the terms of the Second Amendment.

NOW THEREFORE, FOR VALUE RECEIVED, Promisor promise to pay to Vidler the principal sum of Six Million Fifty Three Thousand Two Hundred Five and Ninety One-Hundredths Dollars (\$6,053,205.90), together with interest thereon, from the effective date hereof, July 1, 2009, at the rate of Ten Percent (10%) per annum. Interest payments and principal payments due under this Amended and Restated Note shall be payable in accordance with the payment schedule attached hereto and incorporated herein ("Payment Schedule"). The interest payments set forth in the Payment Schedule shall be paid on the last day of each calendar quarter commencing on September 30, 2009 and continuing on the last day of each calendar quarter thereafter until paid in full. The principal payments set forth on the Payment Schedule shall be made on April 1, 2010, April 1, 2011 and April 1, 2012, respectively. All of the outstanding principal and interest due, but not yet paid, under this Amended and Restated Note shall be due and payable on April 1, 2012 ("Maturity Date"). All payments under this Amended and Restated Note shall be applied first to interest on the unpaid principal and then to principal.

Both principal and interest are payable at the office of Vidler at 3480 G.S. Richards Blvd., Suite 101, Carson City, Nevada 89703, or at such place s the holder hereof may from time to time designate in writing.

Promisor shall have no further obligation to the District pursuant to the terms of the Note.

Promisor may prepay this Note in full or in part without penalty or premium.

Should any event of default, as defined below, occur, the whole sum of principal and interest hereunder shall, without notice, immediately become due at the option of the holder hereof. Any and all of the following shall constitute an event of default hereunder:

- (a) Default in payment of any installment of principal or interest hereunder;
- (b) Default in performance of any obligation contained herein or in the purchase Agreement.

In the event of default under this Note, interest shall be payable on the whole of the sum outstanding at the rate of fifteen percent (15%) per annum (the "Agreed Rate") for the duration of such default, whether or not the holder hereof has exercised its option to accelerate the maturity of this Note and declare the entire unpaid principal indebtedness due and payable.

Promisor and all others who may become liable for the payment of all or any part of this obligation do hereby severally waive presentment for payment, protest and demand, notice of protest, demand and dishonor, and nonpayment of this Note and expressly agree that the maturity of this Note or any payment hereunder may be extended from time to time, at the option of the holder hereof, without in any way affecting the liability of each. Any such extension may be made without notice to any of the parties and without discharging their liability.

Promisor promises to pay all costs incurred in collection and/or enforcement of this note or any part thereof or otherwise in connection herewith, including but not limited to, reasonable attorneys' fees, and, in the event of court action, all costs and such additional sums and attorneys' fees as the court may adjudge reasonable.

The obligations for any party liable for the payment of all or any part of this obligation shall be joint and several.

If any term, provision, covenant or condition of this Note, or any application thereof, should be held by a court of competent jurisdiction to be invalid, void, or unenforceable, all provisions, covenants and conditions of this Note and all applications thereof not held invalid, void or unenforceable, shall continue in full force and effect and shall in no way be affected, impaired or invalidated thereby.

The laws of the State of Nevada shall govern the validity, construction, performance and effect of this Notice. Any action to enforce Promisor's obligations hereunder may be brought in any court of competent jurisdiction in the State of Nevada, and Promisor hereby consents to the jurisdiction of Nevada courts over it.

This Amended and Restated Promissory Note is meant to and hereby does amend and fully replace the January 7, 2009 Note, described above.

IN WITNESS WHEREOF, CSI, the District and Vidler have executed this Amended and Restated Promissory Note the date first written above.

PROMISOR:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: Harvey Whittermore

Harvey Whittermore, Manager

PROMISEE:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: Ronda Hornbeck

Ronda Hornbeck, Chairman

Attest: Wade Paulson

General Manager

VIDLER WATER COMPANY, INC.
a Nevada corporation

By: Robert A. Inman

Its: President

Coyote Springs Investment, LLC
Kane Springs Payment Schedule

Vidler Balance	5,764,958.00
Accrued Interest	288,247.90
Vidler Balance	<u>6,053,205.90</u>
Lincoln Co Balance	2,037,592.00
Total Balance	<u>8,090,797.90</u>
Vidler Interest Rate	10%
Lincoln Co Interest Rate	8.923%

Month	Vidler Payments			Lincoln Co Payments	Total Payments
	Interest	Principal	Total		
Aug-09			-	15,151.52	15,151.52
Sep-09	151,330.15		151,330.15	15,151.52	166,481.66
Oct-09			-	15,151.52	15,151.52
Nov-09			-	15,151.52	15,151.52
Dec-09	151,330.15		151,330.15	15,151.52	166,481.66
Jan-10			-	15,151.52	15,151.52
Feb-10			-	15,151.52	15,151.52
Mar-10	151,330.15		151,330.15	15,151.52	166,481.66
Apr-10		1,360,510.00	1,360,510.00	15,151.52	1,375,661.52
May-10			-	15,151.52	15,151.52
Jun-10	117,317.40		117,317.40	15,151.52	132,468.91
Jul-10			-	15,151.52	15,151.52
Aug-10			-	15,151.52	15,151.52
Sep-10	117,317.40		117,317.40	15,151.52	132,468.91
Oct-10			-	15,151.52	15,151.52
Nov-10			-	15,151.52	15,151.52
Dec-10	117,317.40		117,317.40	15,151.52	132,468.91
Jan-11			-	15,151.52	15,151.52
Feb-11			-	15,151.52	15,151.52
Mar-11	117,317.40		117,317.40	15,151.52	132,468.91
Apr-11		2,574,961.00	2,574,961.00	15,151.52	2,590,112.52
May-11			-	15,151.52	15,151.52
Jun-11	52,943.37		52,943.37	15,151.52	68,094.89
Jul-11			-	15,151.52	15,151.52
Aug-11			-	15,151.52	15,151.52
Sep-11	52,943.37		52,943.37	15,151.52	68,094.89
Oct-11			-	15,151.52	15,151.52
Nov-11			-	15,151.52	15,151.52
Dec-11	52,943.37		52,943.37	15,151.52	68,094.89
Jan-12			-	15,151.52	15,151.52
Feb-12			-	15,151.52	15,151.52
Mar-12	52,943.37		52,943.37	15,151.52	68,094.89
Apr-12		2,117,734.90	2,117,734.90	15,151.52	2,132,886.42
	<u>1,135,033.52</u>	<u>6,053,205.90</u>	<u>7,188,239.42</u>	<u>500,000.07</u>	<u>7,688,239.49</u>

Exhibit 22

DOC # 0138048

03/18/2011

03:49 PM

Official RecordRecording requested By
ALLISON MACKENZIE, PAVLAKIS, WRIGH

Lincoln County - NV

Leslie Boucher - Recorder

Fee \$17.00

Page 1 of 4

RPTT: \$7,757.10

Recorded By AE

Book- 262 Page- 0626

When recorded return to:
VIDLER WATER COMPANY, INC
3480 GS Richards Blvd. Ste. 101
Carson City, NV 89703



0138048

WATER RIGHTS DEED

THIS INDENTURE, made this 20th day of September 2010, by LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada, and VIDLER WATER COMPANY, INC., a Nevada corporation as a "GRANTOR", and VIDLER WATER COMPANY, INC., a Nevada corporation as "GRANTEE", as their interests appear.

WITNESSETH:

That the GRANTOR, for good and valuable consideration delivered to them by the GRANTEE, the receipt and sufficiency of which is hereby acknowledged, does hereby grant, bargain and sell unto said GRANTEE, and to their successors and assigns forever, the GRANTOR's right, a portion of title and interest in and to those certain water rights described in Exhibit "A" which is incorporated by this reference as if fully set forth herein.


TOGETHER WITH all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining and the reversion and reversions, remainder or remainders, rents, issues and profits thereof.

0138048 Book 262 03/18/2011
Page 627 Page 2 of 4

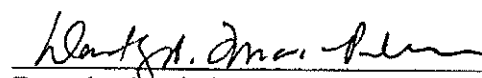
TO HAVE AND TO HOLD all and singular the premises, together with the appurtenances, unto the said GRANTEE and to its successors and assigns forever.

IN WITNESS WHEREOF, the GRANTOR has executed this conveyance the day and year first above written.

LINCOLN COUNTY WATER DISTRICT
a political subdivision of the State of Nevada

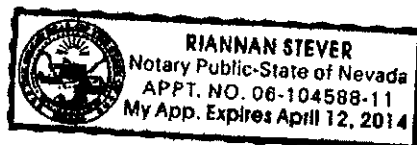

Ronda Hornbeck
Chairman

VIDLER WATER COMPANY, INC.
a Nevada Corporation


Dorothy A. Timian-Palmer
President

STATE OF NEVADA)
) ss.
COUNTY OF LINCOLN)

On Oct. 18, 2010, Ronda Hornbeck personally appeared before me, a notary public, personally known to me to be the person whose name is subscribed to the foregoing instrument and who acknowledged to me that she the Chairman of Lincoln County Water District and who acknowledged to me that she executed the foregoing WATER RIGHTS DEED on behalf of said district.




NOTARY PUBLIC



0138048

Book 252 03/18/2011
Page 628 Page: 3 of 4

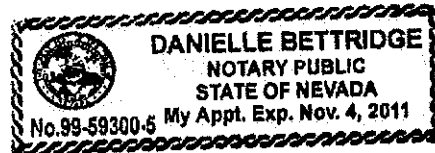
STATE OF NEVADA)

: ss.

COUNTY OF CARSON CITY)

On Sept. 20, 2010, Dorothy A. Timian-Palmer personally appeared before me, a notary public, personally known to me to be the person whose name is subscribed to the foregoing instrument and who acknowledged to me that she the President of Vidler Water Company, Inc. and who acknowledged to me that she executed the foregoing WATER RIGHTS DEED on behalf of said company.

Danielle Bettridge
NOTARY PUBLIC





0138048

Book: 252 03/18/2011
Page: 629 Page: 4 of 4

Exhibit "A"

A portion of the Initial Kane Water equal to 373.48 acre feet per annum, of Permit Number 72220 issued by the Nevada State Engineer, together with a portion equal to 373.48 acre feet per annum under each of Permit Numbers 72218, 72219, and 72221 (having a combined duty equal to 373.48 acre feet) having interest in and to the rights and obligations of Grantor under the above-referenced Permits and the appurtenant applications and stipulations relating to such water rights.

DOC # DV-138048

03/18/2011

03:49 PM

Official Record

State of Nevada
Declaration of ValueRecording requested By
ALLISON, MACKENZIE, PAVLAKIS, WRIGHLincoln County - NV
Leslie Boucher - RecorderPage 1 of 12 Fee: \$17.00
Recorded By: AE RPTT: \$7,757.10
Book- 252 Page- 0526

1. Assessor Parcel Number(s)

- a) NA
b) _____
c) _____
d) _____

2. Type of Property:

- a) ☐ Vacant Land b) ☐ Single Fam. Res.
c) ☐ Condo/Twnh d) ☐ 2-4 Plex
e) ☐ Apt. Bldg. f) ☐ Comm'l/Ind'l
g) ☐ Agricultural h) ☐ Mobile Home
i) ☒ Other Water Rights

FOR RECORDER'S OPTIONAL USE ONLY

Document/Instrument#: _____

Book: _____ Page: _____

Date of Recording: 3/18/2011She gave OK on 3/18/2011

3. Total Value/Sales Price of Property:

\$ 6,014,932.75

Deed in Lieu of Foreclosure Only (value of property)

\$ _____

Transfer Tax Value:

\$ 1,988,657.75

Real Property Transfer Tax Due:

\$ 7,757.10

If Exemption Claimed:

4.

a. Transfer Tax Exemption, per NRS 375.090, Section: (3) and (4)

b. Explain Reason for Exemption: This deed recognizes the true status of ownership of real property and is a transfer without consideration from one tenant in common to another. See attached supporting Affidavit of Dorothy A. Timian Palmer.

5.

Partial Interest: Percentage being transferred: 24.626 %

The undersigned declares and acknowledges, under penalty of perjury, pursuant to NRS 375.060 and NRS 375.110, that the information provided is correct to the best of their information and belief, and can be supported by documentation if called upon to substantiate the information provided herein. Furthermore, the disallowance of any claimed exemption, or other determination of additional tax due, may result in a penalty of 10% of the tax due plus interest at 1% per month.

Pursuant to NRS 375.030, the Buyer and Seller shall be jointly and severally liable for any additional amount owed.

Signature _____

Signature _____

SELLER (GRANTOR) INFORMATION
(REQUIRED)Capacity GRANTORCapacity GRANTEEBUYER (GRANTEE) INFORMATION
(REQUIRED)Print Name: Lincoln County Water DistrictPrint Name: Vidler Water Company, Inc.Address: P.O. Box 206Address: 3480 GS Richards Blvd. Ste 101City: PiocheCity: Carson CityState: NVZip: 89043State: NVZip: 89703

COMPANY/PERSON REQUESTING RECORDING (REQUIRED IF NOT THE SELLER OR BUYER)

Print Name: Allison, MacKenzie, Pavlakis, Wright & Fagan, LTD. Escrow # _____Address: 402 N. Division St., P.O. Box 646City: Carson CityState NVZip 89702

(AS A PUBLIC RECORD THIS FORM MAY BE RECORDED)



D/- 138049
03/18/2011

AFFIDAVIT OF DOROTHY A. TIMIAN-PALMER

STATE OF NEVADA)
 ; ss.
CARSON CITY)

DOROTHY A. TIMIAN-PALMER states under penalty of perjury that the following assertions are true and correct:

1. That she is the President and Chief Operating Officer of VIDLER WATER COMPANY, INC., a Nevada corporation ("VIDLER").

2. That VIDLER and LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("LINCOLN"), filed Application Nos. 72218, 72219, 72220 and 72221 to appropriate water with the State of Nevada, Department of Conservation and Natural Resources, Division of Water Resources ("State Engineer") in February, 2005.

3. That at the time of filing such applications VIDLER and LINCOLN intended that they would each own a one half interest in the pending applications and in any water rights permits granted by the State Engineer as a result of the applications.

4. VIDLER and LINCOLN memorialized their one half ownership interests in the pending applications and in any water rights permits, should they be granted, in the Coyote Springs Project Agreement dated April 4, 2005. A true and correct copy of the Coyote Springs Project Agreement is attached hereto as Exhibit "A" and incorporated herein by this reference.

5. In May, 2007 the State Engineer granted VIDLER and LINCOLN's applications and issued Permit Nos. 72218, 72219, 72220 and 72221 (the "Permits").

6. Pursuant to the VIDLER and LINCOLN agreement, they each owned a one half interest in Permit Nos. 72218, 72219, 72220 and 72221.

7. Thereafter, LINCOLN transferred to VIDLER pursuant to a Water Rights Deed dated September 20, 2010, an additional 24.696% of the entirety of the Permits,

ALLISON, MacKENZIE, PAVLAKIS, WRIGHT & FAGAN, LTD.
402 North Division Street, P.O. Box 646, Carson City, NV 89702
Telephone: (775) 687-0202 Fax: (775) 882-7918
E-Mail Address: law@allisonmackenzie.com

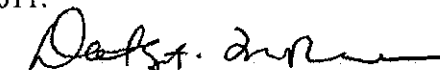
1 causing LINCOLN to have a 25.304% ownership interest in the Permits and VIDLER to have
2 a 74.696% ownership interest in the Permits.

3 8. On that same date, VIDLER executed a Water Rights Deed transferring
4 and acknowledging the true status of LINCOLN's share of the Permits, a 25.304% ownership
5 interest in the Permits.

6 9. Pursuant to NRS 375.090(3) and (4) and NAC 375.150(13) VIDLER is
7 exempt from transfer tax for the one half ownership interest it originally held in the Permits
8 and is only obligated to pay transfer tax for the 24.696% ownership interest in the Permits it
9 thereafter acquired from LINCOLN.

10 10. The transfer of title evidenced by the Water Rights Deeds was done to
11 reflect the true status of the ownership of the Permits and to evidence the chain of title of the
12 Permits for purposes of complying with NRS 533.384 and the requirements of the State
13 Engineer.

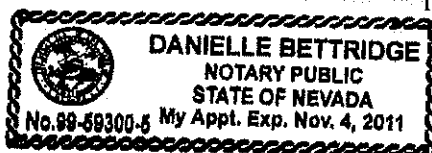
14 DATED this 10th day of March, 2011.

15 
16 DOROTHY A. TIMIAN-PALMER
President and Chief Operating Officer

17 STATE OF NEVADA)
18 CARSON CITY) ss.

19 On March 10th, 2011, personally appeared before me, a
20 notary public, DOROTHY A. TIMIAN-PALMER, personally known (or proved) to me to be
21 the person whose name is subscribed to the foregoing instrument, who acknowledged to me
22 that she is the President and Chief Operating Officer of VIDLER WATER COMPANY, INC.,
23 a Nevada corporation, and who further acknowledged to me that she executed the foregoing
24 Affidavit of Dorothy A. Timian-Palmer on behalf of said corporation.

25 
26 NOTARY PUBLIC





DV-138948
03/18/2011

EXHIBIT “A”



COYOTE SPRINGS PROJECT AGREEMENT

This Agreement entered into this 4th day of April, 2005, by and between LINCOLN COUNTY WATER DISTRICT, a political subdivision of the STATE OF NEVADA, hereinafter "LCWD," and VIDLER WATER COMPANY, INC., hereinafter "VIDLER."

RECITALS

1. On September 21, 1998, VIDLER and Lincoln County entered into a Water Resource Planning Memorandum of Understanding ("MOU") for water resource planning of water resources in Lincoln County.
 2. Based upon resolutions of the Board of the Lincoln County Water District and the Lincoln County Board of Commissioners, the MOU, water rights applications and permits together with other agreements related to water resource planning and development were assigned by Lincoln County to LCWD.
 3. In conjunction with the development and implementation of the Lincoln County Master Plan, LCWD and VIDLER subsequently filed additional water rights applications and currently hold the Water Resources.
 4. Pursuant to the MOU and other agreements between the parties, LCWD and VIDLER each own a one-half ($\frac{1}{2}$) interest in certain water right applications and permits, which more particularly described in Exhibit "A" which is incorporated by this reference as if fully set forth herein ("Water Resources");
 5. By the terms of this Agreement, LCWD and VIDLER intend to permit a portion of the WATER RESOURCES and necessary rights of way sufficient to serve the area commonly
- Coyote Springs Project Agreement.2005



known as the COYOTE SPRINGS PROJECT which is a real estate development project planned for the area generally abutting Highway 93 containing approximately 25,000 acres within Lincoln County, Nevada and which also straddles the Clark County/Lincoln County boundary and, is the subject of a NRS Chapter 318 District approval and is hereinafter referred to as the COYOTE SPRINGS PROJECT AREA.

NOW, THEREFORE, the parties desire to enter into this Agreement in order to provide adequate water rights for the COYOTE SPRINGS PROJECT AREA development and the distribution of proceeds from the conveyance and transfer of such water rights.

1. COYOTE SPRINGS PROJECT. The COYOTE SPRINGS PROJECT AREA is anticipated to be planned to include residential, commercial and recreational uses for which the developers and builders require the commitment of water resources. Pursuant to the terms of this Agreement, LCWD and VIDLER agree to permit a portion of the Water Resources in Lincoln County to be conveyed to and made available to serve the COYOTE SPRINGS PROJECT AREA.

2. WATER RESOURCES. The parties agree to endeavor to develop sufficient water rights to meet the projected and anticipated needs for the COYOTE SPRINGS PROJECT AREA.

3. DEVELOPMENT OF RESOURCES. LCWD authorizes VIDLER and any of its affiliates to take any and all actions necessary to develop a portion of the Water Resources in order to have water rights available for the Project for the purpose of generating economic activity and creating jobs in southwestern Lincoln County, Nevada. This includes serving as the

Lincoln County technical representative during all BLM/NEPA processes relating to the development of water resources and transmission lines within Lincoln County, regardless of the developer of the resources. UNDER NO CIRCUMSTANCES WILL LCWD BE RESPONSIBLE FOR THE PAYMENT OF ANY COSTS OR EXPENSES ASSOCIATED WITH THE DEVELOPMENT OF THE WATER RESOURCES OR ASSOCIATED WITH PROVIDING WATER RIGHTS TO THE PROJECT, EXCEPT FOR LCWD'S OBLIGATIONS TO REIMBURSE VIDLER AND/OR ITS AFFILIATE FROM REVENUE DERIVED FROM CONVEYING WATER RESOURCES TO THE COYOTE SPRINGS PROJECT AREA AS PROVIDED FOR HEREIN.

4. PAYMENT. Upon conveyance of any portion of the Water Resources to a third party, LCWD and VIDLER shall each be paid, after reimbursement to Vidler, the net revenues generated from the utilization of the Water Resources within or on the COYOTE SPRINGS PROJECT AREA. Revenue from the utilization of the Water Resources within or on the Project shall include, but not be limited to, the following:

1. Any Standby Fees or Commitment Fees paid by any owner, builder or developer within the Project;
2. Any one-time price per acre foot paid by owner, builder or developer within the COYOTE SPRINGS Project Area;
3. Any negotiated ongoing fee for water based upon actual usage by owner, builder or developer within the Project;
4. Any negotiated, ongoing fee for use of reclaimed water derived from Water Resources by owner, builder or developer within the Project.



VIDLER in its sole discretion, will advance or pay any and all costs associated with the permitting and development of the Water Resources and related rights of way developed and made available to the Project which may include any and all consultants required for environmental permitting, governmental relations, engineering, administrative assistants or related services. VIDLER shall provide to LCWD verification of the capital expenditures and debt service, if any, related to permitting and development of the Water Resources for the Coyote Springs Project Area, which verification shall be prepared in accordance with generally accepted accounting principles and executed by VIDLER in affidavit form. All of VIDLER's records relating to providing Water Resources for the Project shall be available for inspection by LCWD. Upon review and approval by the Board of LCWD of VIDLER's capital expenditures solely related to providing Water Resources for the Coyote Springs Project Area, VIDLER shall be entitled to recover said approved capital expenditures from revenue derived from the conveyance or transfer of the Water Resources for the Project prior to any payments made to LCWD. The remainder of such revenue, ("net revenue") shall be shared equally between LCWD and VIDLER as payment for each party's interest in the Water Resources made available to and utilized for the Coyote Springs Project Area.

LCWD IS NOT RESPONSIBLE FOR ANY MONETARY APPROPRIATION FOR THE PERMITTING AND DEVELOPMENT OF THE WATER RESOURCES, OR ANY PORTION THEREOF, FOR THE PROJECT OR UNDER THE TERMS OF THIS AGREEMENT. REIMBURSEMENT OF CAPITAL EXPENDITURES MADE BY VIDLER SHALL ONLY OCCUR FROM PROCEEDS FROM THE USE OF THE WATER



RESOURCES, OR ANY PORTION THEREOF, IN OR TO THE PROJECT AS PROVIDED FOR HEREIN. IN THE EVENT REVENUE FROM THE PROVISION OF WATER SERVICE TO THE PROJECT IS INSUFFICIENT TO COVER VIDLER'S EXPENDITURES RELATED TO SUCH ACTIVITY, LCWD SHALL HAVE NO OBLIGATION OR RESPONSIBILITY TO REIMBURSE VIDLER FOR SUCH EXPENDITURES.

Following review and approval by LCWD of VIDLER's expenditures, the parties hereto agree that there will be a disbursement of funds within ninety (90) days after the determination of "net revenues".

5. LCWD AUTHORITY. This Agreement and its terms are not intended to and do not constitute a delegation or assignment of any governmental and/or statutory authority, obligation or essential government function of LCWD.

6. TERM OF AGREEMENT. This Agreement and any party's obligations hereunder shall remain in full force and effect for a period of fifteen (15) years from the date of this Agreement, unless sooner terminated in accordance with the provisions contained herein.

7. ASSIGNABILITY. This Agreement shall be binding upon and shall inure to the benefit of the parties and their respective successors in interest. This Agreement may NOT be assigned by either party without the express written consent of the other party except that VIDLER may assign this Agreement and the rights hereunder to an affiliated or parent company.

8. SURVIVAL. This Agreement and the covenants, warranties and representations contained herein shall survive the execution of this Agreement.

9. ENTIRE AGREEMENT. This Agreement contains the complete and entire agreement between the parties, and no modification, alteration or change of this Agreement shall
Coyote Springs Project Agreement.2005



be binding upon the parties unless evidenced by an agreement in writing, signed by the parties, after the date of this Agreement.

10. CHOICE OF LAW. This Agreement shall be construed and interpreted under, governed and enforced according to the laws of the state of Nevada.

11. ENFORCEABILITY. If any term, covenant, condition, or provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain in full force and effect, and shall in no way be affected, impaired or invalidated.

12. RELATIONSHIP OF PARTIES. The relationship between the parties created by this Agreement shall be limited to the performance of this Agreement and does not concern any other activities or business of either party. Nothing herein shall be construed to authorize either party to act as a general agent for the other party. This Agreement shall not be construed as a partnership or joint venture, and neither party shall be liable or responsible for any obligation, liability or claim incurred by the other, except as specifically provided for herein. By the terms of this Agreement, LCWD does not abdicate, delegate or waive any of its statutory authority and/or police powers as a political subdivision of the state of Nevada.

13. SEVERABILITY. If any term, covenant, condition, or provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain in full force and effect, and shall in no way be affected, impaired or invalidated.


14. AUTHORITY. Each party respectively warrants, represents and covenants to the other that it has full authority to enter into this Agreement and execute all documents on its
Coyote Springs Project Agreement.2005



behalf.

IN WITNESS WHEREOF, the parties hereto have set their hands the day and year
first above written.

VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 
DOROTHY A. TIMIAN-PALMER, P.E.
Chief Operating Officer

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the state of Nevada

By: 
RONDA HORNBECK, Chairwoman

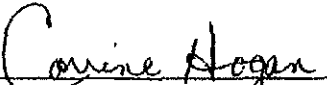
Attest: 
CORRINE HOGAN, Clerk



EXHIBIT A
“Water Resources”

Coyote Springs Project Agreement by and between
Lincoln County Water District and Vidler Water Company

Basin

Kane Springs Valley (206)
Pahroc Valley (208)
Delamar Valley (182)
Coal Valley (171)
Garden Valley (172)

Q. And you're not sure if that's the right date?

Exhibit 23

DOC # 0138047

03/18/2011 03:46 PM

Official Record

Recording requested By
LINCOLN COUNTY WATER DISTRICT

Lincoln County - NV
Leslie Boucher - Recorder

Fee Page 1 of 4
RPTT Recorded By: AE
Book- 262 Page- 0622

When recorded return to:
LINCOLN COUNTY WATER DISTRICT
P.O. Box 206
Pioche, NV 89043



WATER RIGHTS DEED

THIS INDENTURE, made this 20th day of September, 2010, by LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada, and VIDLER WATER COMPANY, INC., a Nevada corporation as a "GRANTOR", and LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada, as "GRANTEE", as their interests appear.

WITNESSETH:

That the GRANTOR, for good and valuable consideration delivered to them by the GRANTEE, the receipt and sufficiency of which is hereby acknowledged, does hereby grant, bargain and sell unto said GRANTEE, and to their successors and assigns forever, the GRANTOR's right, a portion of title and interest in and to those certain water rights described in Exhibit "A" which is incorporated by this reference as if fully set forth herein.

TOGETHER WITH all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining and the reversion and reversions, remainder or remainders, rents, issues and profits thereof.



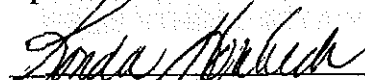
0138047

Book 252
Page 62303/18/2011
Page 2 of 4

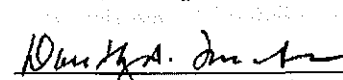
TO HAVE AND TO HOLD all and singular the premises, together with the appurtenances, unto the said GRANTEE and to its successors and assigns forever.

IN WITNESS WHEREOF, the GRANTOR has executed this conveyance the day and year first above written.

LINCOLN COUNTY WATER DISTRICT
a political subdivision of the State of Nevada

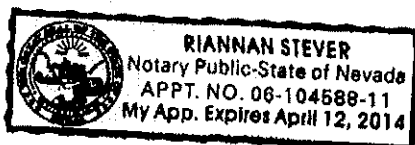

Ronda Hornbeck
Chairman

VIDLER WATER COMPANY, INC.
a Nevada Corporation


Dorothy A. Timian-Palmer
President

STATE OF NEVADA)
: ss.
COUNTY OF LINCOLN)

On OCT 18, 2010, Ronda Hornbeck personally appeared before me, a notary public, personally known to me to be the person whose name is subscribed to the foregoing instrument and who acknowledged to me that she the Chairman of Lincoln County Water District and who acknowledged to me that she executed the foregoing WATER RIGHTS DEED on behalf of said district.




NOTARY PUBLIC



0138047

Book 20

03/18/2011

Page 624

Page 3 of 3

STATE OF NEVADA)

: ss.

COUNTY OF CARSON CITY)

On Sept. 20th, 2010, Dorothy A. Timian-Palmer personally appeared before me, a notary public, personally known to me to be the person whose name is subscribed to the foregoing instrument and who acknowledged to me that she the President of Vidler Water Company, Inc. and who acknowledged to me that she executed the foregoing WATER RIGHTS DEED on behalf of said company.

Danielle Bettridge
NOTARY PUBLIC





0138047

Book 262
Page 62503/18/2011
Page 4 of 5

Exhibit "A"

A portion of the Initial Kane Water equal to 126.52 acre feet per annum, of Permit Number 72220 issued by the Nevada State Engineer, together with a portion equal to 126.52 acre feet per annum under each of Permit Numbers 72218, 72219, and 72221 (having a combined duty equal to 126.52 acre feet) having interest in and to the rights and obligations of Grantor under the above-referenced Permits and the appurtenant applications and stipulations relating to such water rights.

DOC # DV-138047
 03/18/2011 03:46 PM
Official Record

**State of Nevada
 Declaration of Value**

Recording requested By
 LINCOLN COUNTY WATER DISTRICT

**Lincoln County - NV
 Leslie Boucher - Recorder**

Page 1 of 1 Fee:
 Recorded By: AE RPTT:
 Book- 262 Page- 0622

1. Assessor Parcel Number(s)

- a) NA
 b) _____
 c) _____
 d) _____

2. Type of Property:

- a) ☐ Vacant Land b) ☐ Single Fam. Res.
 c) ☐ Condo/Twnh d) ☐ 2-4 Plex
 e) ☐ Apt. Bldg. f) ☐ Comm'l/Ind'l
 g) ☐ Agricultural h) ☐ Mobile Home
 i) ☒ Other Water Rights

FOR RECORDER'S OPTIONAL USE ONLY

Document/Instrument #: _____
 Book: _____ Page: _____
 Date of Recording: _____

3. Total Value/Sales Price of Property:

\$ 2,037,617.25

Deed in Lieu of Foreclosure Only (value of property)

\$ _____

Transfer Tax Value:

\$ 0.00

Real Property Transfer Tax Due:

\$ 0.00

4. **If Exemption Claimed:**

- a. Transfer Tax Exemption, per NRS 375.090, Section: (2)
 b. Explain Reason for Exemption: This deed is a transfer of title to Lincoln County Water District a political subdivision of the state of Nevada

5. Partial Interest: Percentage being transferred: _____ %

The undersigned declares and acknowledges, under penalty of perjury, pursuant to NRS 375.060 and NRS 375.110, that the information provided is correct to the best of their information and belief, and can be supported by documentation if called upon to substantiate the information provided herein. Furthermore, the disallowance of any claimed exemption, or other determination of additional tax due, may result in a penalty of 10% of the tax due plus interest at 1% per month.

Pursuant to NRS 375.030, the Buyer and Seller shall be jointly and severally liable for any additional amount owed.

Signature [Signature]
 Signature [Signature]
SELLER (GRANTOR) INFORMATION
 (REQUIRED)

Capacity GRANTOR
 Capacity GRANTEE
BUYER (GRANTEE) INFORMATION
 (REQUIRED)

Print Name: Vidler Water Company, Inc.

Address: 3480 GS Richards Blvd. Ste 101

City: Carson City

State: NV Zip: 89703

Print Name: Lincoln County Water District

Address: P.O. Box 206

City: Pioche

State: NV Zip: 89043

COMPANY/PERSON REQUESTING RECORDING (REQUIRED IF NOT THE SELLER OR BUYER)

Print Name: Allison Mackenzie Pavlakis Wright & Fagan, LTD. Escrow # LINCOLN COUNTY WATER DISTRICT

Address: 402 N. Division St., P.O. Box 646 P.O. Box 307

City: Carson City PIOCHE State NV NV Zip 89702 89043

(AS A PUBLIC RECORD THIS FORM MAY BE RECORDED)

10/9/20

CONFIDENTIAL
EXHIBIT 24

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

Exhibit 24

CONFIDENTIAL

10/9/20

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

DOC # 0136261

08/06/2010

02:48 PM

Official Record

Recording requested By
VIDLER WATER COMPANY

Lincoln County - NV
Leslie Boucher - Recorder

Fee: \$42.00

Page 1 of 4

RPTT:

Recorded By: LB

Book- 257 Page- 0342



0136261

APN N/A - WATER RIGHTS

APN _____

APN _____

WATER RIGHTS DEED

Title of Document

Affirmation Statement

X I, the undersigned hereby affirm that the attached document, including any exhibits, hereby submitted for recording does not contain the social security number of any person or persons. 9Per NRS 239B.030)

____ I, the undersigned hereby affirm that the attached document, including any exhibits, hereby submitted for recording does contain the social security number of a person or persons as required by law:

(State specific law)

Donelle Bettridge Admin Svc Mgr.
Signature Title

Signature

Date

Grantees address and mail tax statement:

COYOTE SPRINGS INVESTMENT, LLC

6600 N. WINGFIELD PKWY

SPARKS, NV 89436



0136261

806 37 08/06/2010
Page: 343 Page: 2 of 4

DOC # 0136045

06/21/2010

12:25 PM

Official RecordRecording requested By
COYOTE SPRINGS INVESTMENTS, LLC

Lincoln County - NV

Leslie Boucher - Recorder

Fee: \$16.00

Page 1 of 3

RPTT: \$5,307.90

Recorded By: LB

Book- 256 Page- 0523



0136045

When recorded return to:

Carl D. Savely
COYOTE SPRINGS INVESTMENT LLC
6600 N. Wingfield Parkway
Sparks, Nevada 89436

The party executing this document hereby affirms
that this document submitted for recording does
not contain the social security number of any
person or persons pursuant to NRS 239B.030

WATER RIGHTS DEED**THIS DOCUMENT IS BEING RE-RECORDED FOR THE SOLE PURPOSE OF
CORRECTING THE LEGAL DESCRIPTION**

THIS INDENTURE, made this May day of May, 2010, by VIDLER WATER
COMPANY, INC., a Nevada corporation, hereinafter referred to as "GRANTOR," and COYOTE
SPRINGS INVESTMENT LLC, a Nevada Limited Liability Company, hereinafter referred to as
"GRANTEE."

WITNESSETH:

That the GRANTOR, for good and valuable consideration delivered to them by the
GRANTEE, the receipt and sufficiency of which is hereby acknowledged, subject to the conditions
and restrictions set forth below, does hereby grant, bargain and sell unto said GRANTEE, and to its
successors and assigns forever, all right, title and interest of GRANTOR's right, title and interest in
and under those certain water rights within Lincoln County in the state of Nevada more particularly
described in Exhibit "A" which is incorporated by this reference as if fully set forth herein.

The interest conveyed herein is subject to the following covenants, conditions and
restrictions:

Except to the extent necessary to satisfy GRANTEE's obligation to dedicate water
rights to the United States Fish & Wildlife Service ("FWS") for the benefit of the Moapa dace (which
dedicated water rights may be used as determined by FWS and as approved by the Nevada State
Engineer), in accordance with the provisions of that certain Memorandum of Agreement by and
among the Southern Nevada Water Authority, FWS, GRANTEE, the Moapa Band of Paiute Indians
and the Moapa Valley Water District, dated April 20, 2006, the Exhibit "A" water rights may only be
put to beneficial use within Lincoln County, the Lincoln County - Coyote Springs Consolidated
General Improvement District ("LC-CSCGID") in Lincoln County and the service area of the Clark
County - Coyote Springs Water Resources General Improvement District ("CC-CSWRGID") in
Clark County, Nevada pursuant to the service rules of the LC-CSCGID or the CC-CSWRGID.

0136261

Book: 220 08/06/2010
Page: 344 Page: 3 of 4

EXCEPT AS SPECIFICALLY PROVIDED FOR ABOVE, TOGETHER WITH all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining and the reversion and reversions, remainder or remainders, rents, issues and profits thereof.

TO HAVE AND TO HOLD all and singular the premises, together with the appurtenances, unto the said GRANTEE and to its successors and assigns forever.

IN WITNESS WHEREOF, the GRANTOR has executed this conveyance the day and year first above written.

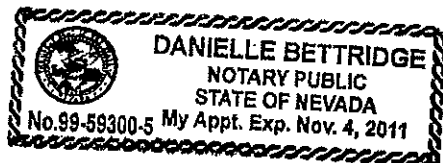
VIDLER WATER COMPANY, INC.,
a Nevada Corporation

By: *Dorothy Timian-Palmer*
Dorothy Timian-Palmer P.E.
President

STATE OF NEVADA)
 : ss.
CARSON CITY)

On the 5th day of May 2010, DOROTHY TIMIAN-PALMER, personally appeared before me, a notary public, personally known to me to be the person whose name is subscribed to the foregoing instrument and known to me to be the President of Vidler Water Company, Inc.

Danielle Bettridge
NOTARY PUBLIC



0136261

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08/06/2010

Page: 345

Page: 4 of 4

EXHIBIT "A"

A portion equal to 149.39 acre feet per annum, of Permits Numbers 72218, 72219, 72220, and 72221 issued by the Nevada State Engineer, together with an undivided twenty (20%) percent interest in and to the rights and obligations of the aforesated Permits and the appurtenant applications, permits and stipulations relating to such water rights.

INITIAL HERE

JMP

A portion equal to 75.39 acre feet per annum, of Permit Number 72220 issued by the Nevada State Engineer, together with a portion equal to 74.00 acre feet under each of Permit Numbers 72218, 72219 and 72221 (having a combined duty equal to 74.00 acre feet) together with an undivided twenty (20%) percent interest in and to the rights and obligations of Grantor under the above-referenced Permits and the appurtenant application and stipulations relating to such water rights.

DOC # DV-136261
 08/06/2010 02:48 PM
Official Record

Recording requested By
 VIDLER WATER COMPANY

Lincoln County - NV
 Leslie Boucher - Recorder

Page 1 of 1 Fee: \$42.00
 Recorded By: LB RPTT:
 Book- 257 Page- 0342

**STATE OF NEVADA
 DECLARATION OF VALUE FORM**

1. Assessor Parcel Number(s)

- a. N/A
 b. _____
 c. _____
 d. _____

2. Type of Property:

- a. ☐ Vacant Land b. ☐ Single Fam. Res.
 c. ☐ Condo/Twnhse d. ☐ 2-4 Plex
 e. ☐ Apt. Bldg f. ☐ Comm'l/Ind'l
 g. ☐ Agricultural h. ☐ Mobile Home
☒ Other Water Rights

FOR RECORDER'S OPTIONAL USE ONLY

Book: _____ Page: _____

Date of Recording: _____

Notes:

3. a. Total Value/Sales Price of Property
 b. Deed in Lieu of Foreclosure Only (value of property)
 c. Transfer Tax Value:
 d. Real Property Transfer Tax Due

\$ _____
 (_____)
 \$ _____
 \$ _____

4. **If Exemption Claimed:**

- a. Transfer Tax Exemption per NRS 375.090, Section 3
 b. Explain Reason for Exemption: Re-recording deed to correct legal description. RPTT paid when Deed was recorded 06-21-2010 in BK 256, Pg 0523, Doc. #0136045

5. Partial Interest: Percentage being transferred: _____ %

The undersigned declares and acknowledges, under penalty of perjury, pursuant to NRS 375.060 and NRS 375.110, that the information provided is correct to the best of their information and belief, and can be supported by documentation if called upon to substantiate the information provided herein. Furthermore, the parties agree that disallowance of any claimed exemption, or other determination of additional tax due, may result in a penalty of 10% of the tax due plus interest at 1% per month. Pursuant to NRS 375.030, the Buyer and Seller shall be jointly and severally liable for any additional amount owed.

Signature: David A. Martin

Capacity: Grantor

Signature: Carl D. Savell

Capacity: Grantee

SELLER (GRANTOR) INFORMATION
(REQUIRED)

BUYER (GRANTEE) INFORMATION
(REQUIRED)

Print Name: Vidler Water Company Inc.
 Address: 3480 GS Richards Blvd., Suite 101
 City: Carson City
 State: NV Zip: 89703

Print Name: Coyote Springs Investment
 Address: 6600 N. Wingfield Pkwy
 City: Sparks
 State: NV Zip: 89436

COMPANY REQUESTION RECORDING

Print Name: Vidler Water Company Inc.
 Address: 3480 GS Richards Blvd., Suite 101
 City: Carson City

Escrow #: _____
 State: NV Zip: 89703

Exhibit 25

THIRD AMENDMENT OF AGREEMENT

THIS THIRD AMENDMENT OF AGREEMENT ("**Third Amendment**") is made as of December 19th 2011, by and among COYOTE SPRINGS INVESTMENT LLC, a Nevada limited liability company ("**CSI**"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("**District**"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("**Vidler**"), with reference to that certain Agreement by and among CSI, District, and Vidler dated October 17, 2005 ("**Purchase Agreement**"), as amended by that certain First Amendment of Agreement by and among CSI, District, and Vidler dated November 11, 2008 ("**First Amendment**"), and that certain Second Amendment of Agreement by and among CSI, District, and Vidler dated July 31, 2009 ("**Second Amendment**"). The Purchase Agreement, First Amendment, and Second Amendment are collectively referred to herein as the "**Agreement**." Terms with initial capital letters used herein but not otherwise defined herein shall have the same meaning as set forth in the Agreement.

RECITALS

WHEREAS, the Agreement provides for the sale by the District and Vidler, and the purchase by CSI of certain water rights appropriated within the Kane Springs Valley Basin (Basin 206) ("**KSV Basin**") upon the terms and conditions set forth in the Agreement.

WHEREAS, pursuant to the terms of the First Amendment and Second Amendment, Vidler has conveyed to CSI and CSI has purchased from Vidler and District 149.39 afa of water.

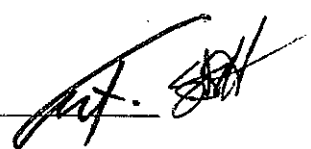
WHEREAS, pursuant to the terms of the Second Amendment, 253.04 afa of water has been retained and/or conveyed to the District for use at the Coyote Springs development.

WHEREAS, pursuant to the terms of the First Amendment, CSI executed a Promissory Note dated January 7, 2009 payable to LCWD and Vidler in the principal sum of \$7,802,550.00 ("**Original Note**").

WHEREAS, pursuant to the terms of the Second Amendment, CSI executed an Amended and Restated Promissory Note dated July 1, 2009 payable to Vidler in the principal sum of \$6,053,205.90 ("**Amended and Restated Note**"). The Original Note and Amended and Restated Note are collectively referred to herein as "**Note**."

WHEREAS, subsequent to the date of the Second Amendment, the parties determined that it is in the best interests of the parties to modify CSI's obligation to acquire all of the 1000 afa of Initial Kane Water as described in the Agreement so that CSI has the obligation to acquire only the remaining 97.57 afa of the first 500 afa of the Initial Kane Water and CSI shall further have the option to acquire the second 500 afa of Initial Kane Water pursuant to the terms of this Third Amendment.

WHEREAS, CSI, the District and Vidler desire to amend the Agreement and Note in order to provide that only the payments for the acquisition by CSI of the remaining 97.57 afa of water are required under the Note.

A handwritten signature in black ink, appearing to be "J. J. J.", is located in the bottom right corner of the page.

WHEREAS, CSI, the District and Vidler desire to amend these and certain other terms and conditions of the Note and the Agreement.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, District, and Vidler mutually agree as follows:

1. Section 1(a) of the Agreement is hereby amended in its entirety to read as follows:

The outstanding principal balance due under the Note is hereby amended to be equal to the amount of \$864,256.52 ("**Vidler Balance**") as of the date of this Third Amendment of Agreement. Payment of the Vidler Balance shall be paid to Vidler in accordance with the revised Kane Springs Payment Schedule attached hereto as **Exhibit A** and incorporated herein.

Concurrently with the delivery of this Third Amendment, the parties hereto shall execute and deliver a Second Amended and Restated Promissory Note fully replacing the Note substantially in the form of **Exhibit B** attached hereto and incorporated herein.

2. Section 1(b) of the Agreement is hereby amended in its entirety to read as follows:

Notwithstanding any provision to the contrary contained in the Agreement, the remaining Vidler portion of the first 500 afa of the Initial Kane Water in the amount of 97.57 afa ("**Remaining Vidler Portion**") shall be conveyed by Water Rights Deed to CSI and corresponding non-exclusive rights associated with the Permits shall be assigned and corresponding non-exclusive obligations associated with the Permits shall be delegated to CSI in accordance with the following payment schedule. The total purchase price for the Remaining Vidler Portion is \$864,256.52 (97.57 afa x \$8,857.81). CSI, at its sole option, may elect to have such conveyance by separate deed upon each payment or collectively when the Remaining Vidler Portion is paid in full as follows:

- (a) January 1, 2012 - \$108,032.07 - 12.19 afa and two percent (2% of the Remaining Vidler Portion) of Permit rights and obligations;
- (b) February 1, 2012 - \$108,032.07 - 12.19 afa and two percent (2% of the Remaining Vidler Portion) of Permit rights and obligations;
- (c) March 1, 2012 - \$108,032.07 - 12.19 afa and two percent (2% of the Remaining Vidler Portion) of Permit rights and obligations;
- (d) April 1, 2012 - \$108,032.07 - 12.20 afa and two percent (2% of the Remaining Vidler Portion) of Permit rights and obligations;
- (e) May 1, 2012 - \$108,032.07 - 12.20 afa and three percent (3% of the Remaining Vidler Portion) of Permit rights and obligations;
- (f) June 1, 2012 - \$108,032.07 - 12.20 afa and three percent (3% of the Remaining Vidler Portion) of Permit rights and obligations;

- (g) July 1, 2012 - \$108,032.07 – 12.20 afa and three percent (3% of the Remaining Vidler Portion) of Permit rights and obligations;
- (h) August 1, 2012 - \$108,032.07 – 12.20 afa and three percent (3% of the Remaining Vidler Portion) of Permit rights and obligations

CSI shall pay the real property transfer taxes, if any is due, in connection with each respective conveyance. At CSI's election, Vidler shall convey the Remaining Vidler Portion as provided for herein by Water Rights Deed(s) directly to the District instead of to CSI provided that CSI and District have agreed on a reimbursement mechanism as set forth in Section 4 of the Agreement, as amended by the Second Amendment.

3. Section 1(c) of the Agreement is hereby amended in its entirety to read as follows:

In consideration of the District dedicating the District Portion to serve CSI's development in the Coyote Springs Valley ("Coyote Springs Development"), CSI shall pay the District a monthly standby fee in the amount of \$15,151.52 (\$2,037,592.00 x 8.923% per annum based on a 360 day year). The monthly standby fee shall be reduced to \$10,188 (\$2,037,592.00 x 6% per annum based on a 360 day year) concurrently with the earlier of: (i) the payment in full of the Vidler 500 afa Balance, as defined in Section 1(e) below should CSI exercise its option to acquire the Vidler 500 afa Balance or (ii) the expiration of the five-year option term set forth in section 1(e) below should CSI elect not to exercise its option to acquire the Vidler 500 afa Balance. The standby fee shall be paid on the first day of each month commencing on August 1, 2009, and continuing on the first day of each month thereafter on an acre-foot basis until such time as the water is placed to beneficial use within the Coyote Springs Development (if only a portion of the water is initially placed to beneficial use, the standby fee shall reduced on a pro rata basis).

4. A new Section 1(e) is hereby added to the Agreement, which reads as follows:

On September 1, 2012, CSI shall pay the sum of \$60,000 to Vidler as an initial annual option fee which such option fee is given as consideration for CSI's five (5) year option to acquire the remaining 500 afa of the Initial Kane Water ("**Vidler 500 afa Balance**"). CSI shall make four (4) subsequent option payments to Vidler in the amount of \$60,000 each on September 1, 2013, September 1, 2014, September 1, 2015, and September 1, 2016. At or before the expiration of the five (5) year option period, CSI shall have the right, but not the obligation, to purchase all or a portion of the Vidler 500 afa Balance for the sum of \$8,857.81 per afa. Should CSI exercise the option to purchase all or a portion of the Vidler 500 afa Balance, CSI shall notify Vidler and District of such election at least thirty (30) days prior to the expiration of the five (5) year term. Provided all parties have satisfied their obligations set forth in the Agreement including those set forth in Section 1(f) below, such payment shall be deposited into a neutral escrow account contemporaneously with the deposit by Vidler of the Water Rights Deed conveying the Vidler 500 afa balance to CSI within thirty (30) days of notifying Vidler of CSI's election to exercise its option. Certain rights associated with the Permits shall be assigned and certain obligations associated with the Permits shall be delegated to CSI. Upon completion of the drilling of the production well as set forth in Section 1(f) below, the payment shall be released to Vidler and the Water

Rights Deed to CSI shall be recorded. Should Vidler fail to drill the production well as required hereunder, CSI shall have the right, but not the obligation, to perform such work and the actual costs of such work, plus a ten percent (10%) administration fee shall be immediately reimbursed to CSI from escrow upon CSI's submission of an invoice into escrow. The parties shall execute any necessary escrow instructions in furtherance of this process. Should CSI, at any time during the option period, acquire a portion of the Vidler 500 afa Balance, the option payments for the remaining option term shall be prorated accordingly.

5. A new Section 1(f) is hereby added to the Agreement, which reads as follows:

In addition to any other obligations of the parties set forth in the Agreement, prior to the earlier of the conveyance by Vidler to CSI of all or a portion of the Vidler 500 afa Balance or the expiration of the 5-year option period, Vidler shall have obtained approval by the Nevada State Engineer to change the Points of Diversion under Permits 72218, 72219 and 72221 to within the BLM Right of Way (N-79742), or shall have acquired additional right of way for these Permits. In addition, Vidler shall drill an additional production well, at a point of diversion selected by LCWD/Vidler based upon the water resource and the necessary environmental approvals, should CSI exercise its option to purchase the entire Vidler 500 afa Balance. Such well shall be completed within 120 days after CSI's notice of election to purchase the Vidler 500 afa Balance. Notwithstanding any other provision herein, in the event that CSI exercises its option to purchase any amount of water less than the entire Vidler 500 afa Balance, neither Vidler nor LCWD will have an obligation to drill an additional production well. CSI's right to purchase all or a portion of the Vidler 500 afa Balance at the price set forth herein shall not be affected by the timing of Vidler's completion of its obligations set forth herein. To the extent any of the obligations set forth herein (with the exception of the drilling of the production well) are not satisfied at the time CSI exercises its option to purchase the Vidler 500 afa Balance and remain unsatisfied at the time the 5-year option period expires, the option period shall be extended for an additional 3 years period at the same option price set forth in Section 1(e) above and all other terms and conditions in this Agreement shall apply to such extended option term.

6. The parties acknowledge that the purchase price for the Remaining Vidler Portion and the Vidler 500 afa Balance shall not accrue interest and the purchase price for such conveyances set forth in paragraph 1 through 5 above, respectively, are full consideration by CSI for such conveyances. Notwithstanding anything in the Agreement to the contrary, any and all outstanding principal or interest payments are waived in their entirety.
7. Notwithstanding anything in the Agreement, including the first paragraph of Section 1, or this Third Amendment to the contrary, CSI has no obligation to acquire all of the water rights available in the Kane Springs basin other than Vidler Remaining Portion referenced in Section 1(b) above.
8. This Third Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.

9. If any term, covenant, condition, or provision of this Third Amendment is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.
10. Except as expressly set forth in this Third Amendment, the Agreement remains unmodified and in full force and effect.


[SIGNATURES FOLLOW ON NEXT PAGE]

A handwritten signature in black ink, appearing to be "M.F." followed by a stylized flourish or second name, located in the bottom right corner of the page.

IN WITNESS WHEREOF, the parties hereto have executed this Third Amendment as of the date first written above.

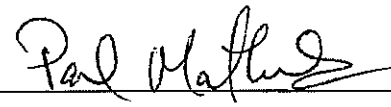
CSI:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company


By:  12-13-11
Name: Albert D. Seeno, III
Its: Authorized Agent

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Name: _____
Its: _____

Attest:

By: 
Name: _____
Its: _____

VIDLER:

VIDLER WATER COMPANY, INC.,
a Nevada corporation

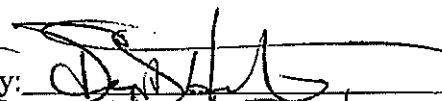
By: 
Name: Stephen D. Hartman
Its: Vice President

EXHIBIT A**KANE SPRINGS PAYMENT SCHEDULE****Coyote Springs Investment LLC****Kane Springs Agreement, Third Amendment, Payment Schedule**

First 500 afa of the Initial Kane Water	500	Afa
Amount of water already conveyed to CSI	149.39	Afa
Amount of water already conveyed to LCWD	253.04	Afa
Amount of "Remaining Vidler Portion"	97.57	Afa
Purchase Price of "Remaining Vidler Portion"	\$8,857.81	per afa
Total Purchase Price of "Remaining Vidler Portion"	\$864,256.52	
Payment Period	8	Months
Each Payment	\$108,032.07	

Note: Payment schedule assumes that LCWD approves the Third Amendment in December 2011

PAYMENT OF "REMAINING VIDLER PORTION"

Date	Payment to Vidler	Remaining Principal
12/1/2011	0	\$864,256.52
1/1/2012	\$108,032.07	\$756,224.46
2/1/2012	\$108,032.07	\$648,192.39
3/1/2012	\$108,032.07	\$540,160.33
4/1/2012	\$108,032.07	\$432,128.26
5/1/2012	\$108,032.07	\$324,096.20
6/1/2012	\$108,032.07	\$216,064.13
7/1/2012	\$108,032.07	\$108,032.07
8/1/2012	\$108,032.07	\$0.00

PAYMENT FOR 5-YR OPTION TO PURCHASE "VIDLER 500 AFA BALANCE"

Date	Payment to Vidler	
9/1/2012	\$60,000.00	
9/1/2013	\$60,000.00	
9/1/2014	\$60,000.00	
9/1/2015	\$60,000.00	
9/1/2016	\$60,000.00	
9/1/2017	\$0.00	Option expires on this date


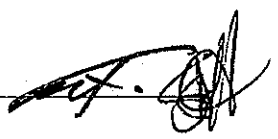


EXHIBIT B

FORM OF SECOND AMENDED AND RESTATED PROMISSORY NOTE

(See attached.)



SECOND AMENDED AND RESTATED PROMISSORY NOTE

THIS SECOND AMENDED AND RESTATED PROMISSORY NOTE ("Second Amendment") is effective as of December ~~19th~~ 2011, by and among COYOTE SPRINGS INVESTMENT LLC, a Nevada limited liability company ("CSI"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("District"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("Vidler"), with reference to that certain January 7, 2009 Promissory Note executed by CSI, as Promisor, District and Vidler, each as a Promisee and collectively, the Promisee, and as amended on July 1, 2009 (collectively, the "Note"). Terms with initial capital letters used herein but not otherwise defined herein shall have the meaning as set forth in the Third Amendment (as defined below).

RECITALS

WHEREAS, CSI, District, and Vidler entered into that certain Third Amendment of Agreement ("Third Amendment") of even date herewith wherein the parties agreed to amend and restate the Note to be consistent with the terms of the Third Amendment.

NOW, THEREFORE, FOR VALUE RECEIVED, Promisor promises to pay to Vidler the principal sum of Eight Hundred Sixty Four Thousand Two Hundred Fifty Six and 52/100 Dollars (\$864,256.52) with no interest thereon. Principal payments due under this Amendment shall not accrue interest and shall be payable in accordance with the payment schedule attached hereto and incorporated herein ("Payment Schedule").

The principal is payable at the office of Vidler at 3480 G.S. Richards Boulevard, Suite 101, Carson City, Nevada 89703, or at such place as the holder hereof may from time-to-time designate in writing.

Promisor shall have no further obligation to District pursuant to the terms of the Note.

Promisor may prepay the Note in full or in part without penalty or premium.

Should any event of default (as defined below) occur, the whole sum of outstanding and unpaid principal hereunder shall, without notice, immediately become due at the option of the holder hereof. Any and all of the following shall constitute an event of default hereunder:

- (a) Default in payment of any installment of principal hereunder; and
- (b) Default in performance of any obligation contained herein or in the Purchase Agreement.

In the event of default under the Note, interest shall be payable on the whole of the sum outstanding at the rate of fifteen percent (15%) per annum ("Agreed Rate") for the duration of such default, whether or not the holder hereof has exercised its option to



accelerate the maturity of the Note and declare the entire unpaid principal indebtedness due and payable.

Promisor and all others who may become liable for the payment of all or any part of this obligation do hereby severally waive presentment for payment, protest and demand, notice of protest, demand and dishonor, and nonpayment of the Note and expressly agree that the maturity of the Note or any payment hereunder may be extended from time-to-time, at the option of the holder hereof, without in any way affecting the liability of each. Any such extension may be made without notice to any of the parties and without discharging their liability.

Promisor promises to pay all costs incurred in collection and/or enforcement of the Note or any part thereof or otherwise in connection herewith, including, but not limited to, reasonable attorneys' fees and, in the event of court action, all costs and such additional sums and attorneys' fees as the court may adjudge reasonable.

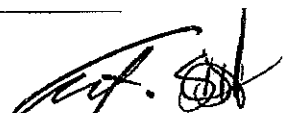
The obligations for any party liable for the payment of all or any part of this obligation shall be joint and several.

If any term, provision, covenant, or condition of the Note, or any application thereof, should be held by a court of competent jurisdiction to be invalid, void, or unenforceable, all provisions, covenants, and conditions of the Note and all applications thereof not held invalid, void, or unenforceable, shall continue in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

The laws of the State of Nevada shall govern the validity, construction, performance, and effect of the Note. Any action to enforce Promisor's obligations hereunder may be brought in any court of competent jurisdiction in the State of Nevada, and Promisor hereby consents to the jurisdiction of Nevada courts over it.

This Amendment is meant to, and hereby does, amend and fully replace the July 1, 2009 Note described above.


[SIGNATURES FOLLOW ON NEXT PAGE]

A handwritten signature in black ink, appearing to be "A. J. [unclear]", is located in the bottom right corner of the page.

IN WITNESS WHEREOF, CSI, District, and Vidler have executed this Amendment as of the date first written above.


CSI:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company


By:  12-13-11
Name: Albert D. Seeno, III
Its: Authorized Agent

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Name: Paul Mathews
Its: Chairman LCWD

Attest:

By: 
Name: WADE FOULSON
Its: General Manager

VIDLER:

VIDLER WATER COMPANY, INC.,
a Nevada corporation


By: 
Name: Stephen D. Heston
Its: Vice President

Exhibit 26

DOC # 0141929

09/04/2012 02:55 PM

Official Record

Recording requested By
COYOTE SPRINGS INVESTMENT

Lincoln County - NV

Leslie Boucher - Recorder

Fee \$41.00 Page 1 of 3

RPT1 \$3.371 55 Recorded By DP

Book- 274 Page- 0056

APN: N/A

Mail Tax Statements to:

Accounts Payable
Coyote Springs Investment LLC
3100 State Route 168, P.O. Box 37010
Coyote Springs, NV 89037



When recorded return to:

Carl D. Savely
Wingfield Nevada Group Management Company, LLC
6600 N. Wingfield Parkway
Sparks, Nevada 89436

The party executing this document hereby affirms
that this document submitted for recording does
not contain the social security number of any
person or persons pursuant to NRS 239B.030

WATER RIGHTS DEED

THIS INDENTURE, made this 22nd day of August, 2012, by VIDLER
WATER COMPANY INC., a Nevada corporation, hereinafter referred to as "GRANTOR",
and COYOTE SPRINGS INVESTMENT LLC, a Nevada Limited Liability Company,
hereinafter referred to as "GRANTEE".

WITNESSETH:

That the GRANTOR, for good and valuable consideration delivered to them by the
GRANTEE, the receipt and sufficiency of which is hereby acknowledged, subject to the
conditions and restrictions set forth below, does hereby grant, bargain and sell unto said
GRANTEE, and to its successors and assigns forever, all right, title and interest of
GRANTOR's right, title and interest in and under those certain water rights appropriated by
the State of Nevada, which such water rights may only be put to beneficial use within the
Coyote Springs Valley (Basin 210), all of which such water rights are specifically described
in Exhibit "A" which is attached to this deed and incorporated herein by this reference.

The interest conveyed herein is subject to the following covenants, conditions and
restrictions:

0141929 Book 274 09/04/2012
 Page 57 Page 7 of 3

Except, as applicable, to the extent necessary to satisfy GRANTEE's obligation to dedicate water rights to the United States Fish & Wildlife Service ("FWS") for the benefit of the Moapa dace (which dedicated water rights may be used as determined by FWS and as approved by the Nevada State Engineer), in accordance with the provisions of that certain Memorandum of Agreement by and among the Southern Nevada Water Authority, FWS, GRANTEE, the Moapa Band of Paiute Indians and the Moapa Valley Water District, dated April 20, 2006.

EXCEPT AS SPECIFICALLY PROVIDED FOR ABOVE, TOGETHER WITH all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining and the reversion and reversions, remainder or remainders, rents, issues and profits thereof.

TO HAVE AND TO HOLD all and singular the premises, together with the appurtenances, unto the said GRANTEE and to its successors and assigns forever.

IN WITNESS WHEREOF, the GRANTOR has executed this conveyance the day and year first above written.

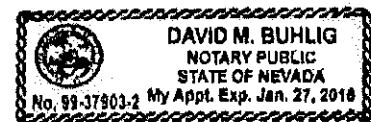
VIDLER WATER COMPANY, INC.,
 a Nevada corporation

By: *Dorothy Timian-Palmer*
 Dorothy Timian-Palmer P.E.
 President

STATE OF NEVADA)
 CARSON CITY) ss.

This instrument was acknowledged before me on AUGUST 22, 2012 by Dorothy Timian-Palmer as President of Vidler Water Company, Inc.

David M. Buhlig
 Notary Public





0141929

Book 274 09/04/2012
Page 30 Page 3 of 3

**Exhibit A
to
Water Rights Deed**

A portion equal to 1.17 cfs; 97.57 acre feet per annum, of water appropriated under Permit No. 72220, issued by the Nevada State Engineer, together with an undivided interest in and to the rights and obligations of GRANTOR under the above referenced Permit, Ruling #5712 and the stipulations relating to such water rights set forth in that certain Stipulation for Withdrawal of Protests entered into between Lincoln County Water District, Vidler Water Company, and the US Fish and Wildlife Service dated April 4, 2006, and as modified by that certain Amended Stipulation for Withdrawal of Protests among the same parties and dated August 1, 2006, and by that certain letter of clarification addressed to Mr. Don Pattalock from the US Fish and Wildlife Service and dated February 10, 2009 and File No. 2009-TA-0140.

DOC # DV-141929

09/04/2012

02:55 PM

Official Record

Recording requested by
COYOTE SPRINGS INVESTMENT

Lincoln County - NV

Leslie Boucher - Recorder

Page 1 of 2 Fee: \$41.00
Recorded By DP RPTT: \$3,371.55
Book- 274 Page- 0056STATE OF NEVADA
DECLARATION OF VALUE FORM

1. Assessor Parcel Number(s)

a) N/A - Water Rights

b) _____

c) _____

d) _____

2. Type of Property:

- a) ☐ Vacant Land b) ☐ Single Fam. Res.
 c) ☐ Condo/Twnhse d) ☐ 2-4 Plex
 e) ☐ Apt. Bldg f) ☐ Comm'l/Ind'l
 g) ☐ Agricultural h) ☐ Mobile Home
☒ Other Water Rights

FOR RECORDER'S OPTIONAL USE ONLY

Book: _____ Page: _____

Date of Recording: _____

Notes: _____

3. Total Value/Sales Price of Property

\$ 864,256.00

Deed in Lieu of Foreclosure Only (value of property)

()

Transfer Tax Value:

\$ 864,256.00

Real Property Transfer Tax Due

\$ 3,371.55

4. If Exemption Claimed:

a. Transfer Tax Exemption per NRS 375.090, Section _____

b. Explain Reason for Exemption: _____

5. Partial Interest: Percentage being transferred: _____ %

The undersigned declares and acknowledges, under penalty of perjury, pursuant to NRS 375.060 and NRS 375.110, that the information provided is correct to the best of their information and belief, and can be supported by documentation if called upon to substantiate the information provided herein. Furthermore, the parties agree that disallowance of any claimed exemption, or other determination of additional tax due, may result in a penalty of 10% of the tax due plus interest at 1% per month. Pursuant to NRS 375.030, the Buyer and Seller shall be jointly and severally liable for any additional amount owed.

Signature *Devlet M. Boucher*

Capacity Grantor

Signature _____

Capacity Grantee

SELLER (GRANTOR) INFORMATION
(REQUIRED)

Print Name: Vidler Water Company Inc.

Address: 3480 GS Richards Blvd., Ste. 10

City: Carson City

State: NV Zip: 89703

BUYER (GRANTEE) INFORMATION
(REQUIRED)

Print Name: Coyote Springs Investment LLC

Address: 6600 N. Wingfield Pkwy.

City: Sparks

State: NV Zip: 89436

COMPANY/PERSON REQUESTING RECORDING (required if not seller or buyer)

Print Name: Coyote Springs Investment LLC Escrow #:

Address: 6600 N. Wingfield Pkwy.

City: Sparks

State: NV

Zip: 89436

AS A PUBLIC RECORD THIS FORM MAY BE RECORDED/MICROFILMED



09/14/2020
09/14/2020

**STATE OF NEVADA
DECLARATION OF VALUE FORM**

1. Assessor Parcel Number(s)

- a) N/A - Water Rights
b) _____
c) _____
d) _____

2. Type of Property:

- a) ☐ Vacant Land b) ☐ Single Fam. Res.
c) ☐ Condo/Twnhse d) ☐ 2-4 Plex
e) ☐ Apt. Bldg f) ☐ Comm'l/Ind'l
g) ☐ Agricultural h) ☐ Mobile Home
☒ Other Water Rights

FOR RECORDER'S OPTIONAL USE ONLY

Book: _____ Page: _____

Date of Recording: _____

Notes: _____

3. Total Value/Sales Price of Property

\$ 864,256.00

Deed in Lieu of Foreclosure Only (value of property) (_____)

Transfer Tax Value: \$ 864,256.00

Real Property Transfer Tax Due \$ 3,371.55

4. If Exemption Claimed:

a. Transfer Tax Exemption per NRS 375.090, Section _____

b. Explain Reason for Exemption: _____

5. Partial Interest: Percentage being transferred: _____ %

The undersigned declares and acknowledges, under penalty of perjury, pursuant to NRS 375.060 and NRS 375.110, that the information provided is correct to the best of their information and belief, and can be supported by documentation if called upon to substantiate the information provided herein. Furthermore, the parties agree that disallowance of any claimed exemption, or other determination of additional tax due, may result in a penalty of 10% of the tax due plus interest at 1% per month. Pursuant to NRS 375.030, the Buyer and Seller shall be jointly and severally liable for any additional amount owed.

Signature _____ Capacity Grantor

Signature [Signature] Capacity Grantee

**SELLER (GRANTOR) INFORMATION
(REQUIRED)**

Print Name: Vidler Water Company Inc.

Address: 3480 GS Richards Blvd., Ste. 10

City: Carson City

State: NV Zip: 89703

**BUYER (GRANTEE) INFORMATION
(REQUIRED)**

Print Name: Coyote Springs Investment LLC

Address: 6600 N. Wingfield Pkwy.

City: Sparks

State: NV Zip: 89436

COMPANY/PERSON REQUESTING RECORDING (required if not seller or buyer)

Print Name: Coyote Springs Investment LLC Crow #: _____

Address: 6600 N. Wingfield Pkwy.

City: Sparks

State: NV Zip: 89436

AS A PUBLIC RECORD THIS FORM MAY BE RECORDED/MICROFILMED

Exhibit 27

FOURTH AMENDMENT OF AGREEMENT

THIS FOURTH AMENDMENT OF AGREEMENT ("**Fourth Amendment**") is made as of December 9, 2014, by and among COYOTE SPRINGS INVESTMENT LLC, a Nevada limited liability company ("**CSI**"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("**District**"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("**Vidler**"), with reference to that certain Agreement by and among CSI, District, and Vidler dated October 17, 2005 ("**Purchase Agreement**"), as amended by that certain First Amendment of Agreement by and among CSI, District, and Vidler dated November 11, 2008 ("**First Amendment**"), and that certain Second Amendment of Agreement by and among CSI, District, and Vidler dated July 31, 2009 ("**Second Amendment**"), and that certain Third Amendment of Agreement by and among CSI, District, and Vidler dated December 19, 2011 ("**Third Amendment**"). The Purchase Agreement, First Amendment, Second Amendment, and Third Amendment are collectively referred as the "**Agreement**." Any term with initial capital letters used herein but not otherwise defined herein shall have the meaning set forth in the Agreement.

RECITALS

WHEREAS, the Agreement provides for certain terms regarding an option of 500 afa of water.

WHEREAS, CSI, the District and Vidler desire to amend these and certain other terms and conditions of the Agreement.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, District, and Vidler mutually agree as follows:

1. Vidler, the District and CSI acknowledge and agree that the Vidler Balance (as defined in Section 1(a) of the Agreement, has been paid in full and the related promissory note has been marked "paid in full" and returned to CSI.
2. Vidler, the District, and CSI acknowledge and agree that Section 1(b) of the Agreement has been completed to the parties' satisfaction.
3. Section 1(e) of the Agreement is hereby amended and restated in its entirety to read as follows:

On September 1, 2012, CSI paid \$60,000 to Vidler as an initial annual option fee and in consideration for a five (5) year option to CSI to acquire the remaining 500 afa of water rights available under Permit Nos. 72218, 72219, and 72221 issued by the Nevada State Engineer on May 31, 2007, and as they are amended or modified from time to time ("**Vidler 500 afa Balance**"). CSI agreed to make four (4) subsequent option payments to Vidler, each in the amount of \$60,000 on September 1, 2013, September 1, 2014, September 1, 2015, and September 1, 2016; CSI then has until September 1, 2017 to complete the purchase of the Vidler 500 afa Balance.

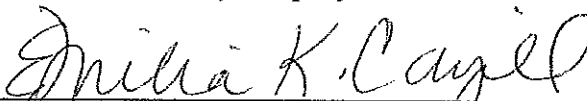


7. If any term, covenant, condition, or provision of this Fourth Amendment is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.
8. Except as expressly set forth in this Fourth Amendment, the Agreement remains unmodified and in full force and effect.
9. This instrument may be executed in one or more counterparts, each of which when taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Third Amendment as of the date first written above.


CSI:

COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: 
Name: Albert D. Seeno, III *Emilia K. Caspell*
Its: Authorized Agent *Senior Vice President & General Counsel*

VIDLER:

VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 
Name: Stephen D. Hartman
Its: Exec. Vice President, Corporate Counsel

[SIGNATURE PAGE CONTINUES to next page]

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: Kevin J. Phillips
Name: Kevin J. Phillips
Its: Vice-Chairman

Attest:

By: Wade Poulson
Name: WADE POULSON
Its: General Manager

AS WITNESSED

20

Exhibit 28

FIFTH AMENDMENT OF AGREEMENT

THIS FIFTH AMENDMENT OF AGREEMENT ("Fifth Amendment") is made as of May 10, 2016, by and among COYOTE SPRINGS INVESTMENT LLC, a Nevada limited liability company ("CSI"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("District"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("Vidler"), with reference to that certain Agreement by and among CSI, District, and Vidler dated October 17, 2005 ("Purchase Agreement"), as amended by that certain First Amendment of Agreement by and among CSI, District, and Vidler dated November 11, 2008 ("First Amendment"), and that certain Second Amendment of Agreement by and among CSI, District, and Vidler dated July 31, 2009 ("Second Amendment"), and that certain Third Amendment of Agreement by and among CSI, District, and Vidler dated December 19, 2011 ("Third Amendment"), and that certain Fourth Amendment of Agreement by and among CSI, District, and Vidler dated December 9, 2014 ("Fourth Amendment"). The Purchase Agreement, First Amendment, Second Amendment, Third Amendment, and Fourth Amendment are collectively referred as the "Agreement." Any term with initial capital letters used herein but not otherwise defined herein shall have the meaning set forth in the Agreement.

RECITALS

WHEREAS, the Agreement provides for certain terms regarding an option of 500 afa of water.

WHEREAS, CSI, the District and Vidler desire to amend these and certain other terms and conditions of the Agreement.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, District, and Vidler mutually agree as follows:

1. Section 1(e) of the Agreement is hereby amended and restated in its entirety to read as follows:

On September 1, 2012, CSI paid \$60,000 to Vidler as an initial annual option fee and in consideration for a seven (7) year option to CSI to acquire the remaining 500 afa of water rights available under Permit Nos. 72218, 72219, and 72221 issued by the Nevada State Engineer on May 31, 2007, and as they are amended or modified from time to time ("Vidler 500 afa Balance"). CSI agreed to make up to six (6) subsequent option payments to Vidler, each in the amount of \$60,000 on September 1, 2013, September 1, 2014, September 1, 2015, September 1, 2016, September 1, 2017, and September 1, 2018; CSI then has until September 1, 2019 to complete the purchase of the Vidler 500 afa Balance.

CSI has, as of the date of this Fifth Amendment, paid the option payments due September 1, 2013, September 1, 2014, and September 1, 2015.

In consideration of a purchase price reduction in the amount of \$1,250,000, CSI releases Vidler from its obligation to drill a second production well as described in Sections 1(e) and 1(f) of the Third Amendment.



CSI shall have the right (but not the obligation) to purchase all of, or a portion of, the Vidler 500 afa Balance on or before September 1, 2019. The purchase price for Vidler 500 afa Balance is calculated as follows: \$8,857.81 per afa purchased. Which, if all 500 afa is purchased, will be \$4,428,905, LESS an agreed upon purchase price deduction in the amount of \$1,250,000, for a net purchase price of \$3,178,905, which is subject to escalation as described below.

The purchase price is not subject to escalation if CSI exercises its option on or prior to September 1, 2017. Should CSI exercises its option after September 1, 2017, but on or prior to September 1, 2018, the prior purchase price shall be reduced by \$60,000 (which is the option payment that will have been paid on September 1, 2017) then escalated by seven and one-half percent (7.5%) for a new purchase price of \$3,352,822.88, as shown in the chart below. Should CSI exercises its option after September 1, 2018, the prior purchase shall again be reduced by \$60,000 (which is the option payment that will have been paid on September 1, 2018) then escalated by seven and one-half percent (7.5%) for a new purchase price of \$3,539,784.59.

The following chart fully and completely sets forth the option and purchase price calculations:

Date	Option Payment	Price per acre-foot (afa)	Escalation	Price for 500 afa	Less Well Cost (\$1.25M)	Total Purchase Price
9/1/2012	\$60,000	\$8,857.81	0.00%	\$4,428,905	(\$1,250,000)	\$3,178,905
9/1/2013	\$60,000	\$8,857.81	0.00%	\$4,428,905	(\$1,250,000)	\$3,178,905
9/1/2014	\$60,000	\$8,857.81	0.00%	\$4,428,905	(\$1,250,000)	\$3,178,905
9/1/2015	\$60,000	\$8,857.81	0.00%	\$4,428,905	(\$1,250,000)	\$3,178,905
9/1/2016	\$60,000	\$8,857.81	0.00%	\$4,428,905	(\$1,250,000)	\$3,178,905
Date	Cost to Exercise	(Less) Option Payments	New Base Price	Plus 7.5% Escalation	Total	
9/1/2017	\$3,178,905.00	(\$60,000)	\$3,118,905.00	\$233,917.88	\$3,352,822.88	(Cost to exercise from 9/1/2017 to 9/1/2018)
9/1/2018	\$3,352,822.88	(\$60,000)	\$3,292,822.88	\$246,961.72	\$3,539,784.59	(Cost to exercise from 9/1/2018 to 9/1/2019)
9/1/2019	\$3,539,784.59					Cost to exercise on 9/1/2019

Should CSI exercise the option to purchase all, or a portion of, the Vidler 500 afa Balance, CSI shall notify Vidler and District of such election no later than thirty (30) days prior the date CSI intends to consummate the purchase. Provided all

parties have satisfied their obligations set forth in this Fifth Amendment and the Agreement, CSI will deposit the purchase price into an agreed upon neutral escrow account contemporaneous with the deposit by Vidler of a water rights deed conveying the Vidler 500 afa Balance to CSI. Closing shall occur as soon as possible, but no later than 60-days following CSI's notice of election to consummate the purchase. Certain rights associated with the Permits shall be assigned and certain obligations associated with the Permits shall be delegated to CSI. The parties shall execute any necessary escrow instructions in furtherance of this process. Should CSI, at any time during the option period, acquire a portion of the Vidler 500 afa Balance, the option payments for the remaining option term shall be prorated accordingly.


The parties acknowledge that the purchase price for the Vidler 500 afa Balance except as set forth in this subsection (e) shall neither accrue interest nor increase over time, and such purchase price is full consideration by CSI for such conveyance.

2. This Fifth Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.
3. If any term, covenant, condition, or provision of this Fifth Amendment is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.
4. Except as expressly set forth in this Fifth Amendment, the Agreement remains unmodified and in full force and effect.
5. This instrument may be executed in one or more counterparts, each of which when taken together shall constitute one ad the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Fifth Amendment as of the date first written above.

CSI:

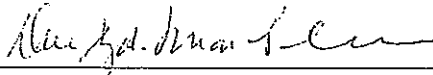
COYOTE SPRINGS INVESTMENT LLC,
a Nevada limited liability company

By: 
Name: Albert D. Seeno, III
Its: Authorized Agent



VIDLER:


VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 
Name: Dorothy Timian-Palmer
Its: President

SIGNATURES CONTINUE TO NEXT PAGE

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Name: Paul Mathews
Its: Chairman

Attest:


By: 
Name: Wade Poulsen
Its: General Manager

Exhibit 29

SIXTH AMENDMENT OF AGREEMENT

THIS SIXTH AMENDMENT OF AGREEMENT ("**Sixth Amendment**") is made as of November 20, 2017, by and among COYOTE SPRINGS INVESTMENT LLC, a Nevada limited liability company ("**CSI**"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("**District**"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("**Vidler**").

R E C I T A L S

A. WHEREAS, CSI, District, and Vidler entered into an Agreement dated October 17, 2005 ("**Purchase Agreement**"), as amended by that certain First Amendment of Agreement by and among CSI, District, and Vidler dated November 11, 2008 ("**First Amendment**"), and that certain Second Amendment of Agreement by and among CSI, District, and Vidler dated July 31, 2009 ("**Second Amendment**"), and that certain Third Amendment of Agreement by and among CSI, District, and Vidler dated December 19, 2011 ("**Third Amendment**"), and that certain Fourth Amendment of Agreement by and among CSI, District, and Vidler dated December 9, 2014 ("**Fourth Amendment**"), and that certain Fifth Amendment of Agreement dated May 10, 2016 ("**Fifth Amendment**"). The Purchase Agreement, First Amendment, Second Amendment, Third Amendment, Fourth Amendment, and Fifth Amendment are collectively referred as the "**Agreement**."

B. WHEREAS, the Agreement provides for a certain "Standby Fee" to be paid by CSI to District and the parties desire to document that the obligation to pay the Standby Fee ceased with the payment made by CSI in January 2017.

C. WHEREAS, CSI and the District desire to amend those terms and certain other terms and conditions of the Agreement, and all parties hereto are in agreement about such matters.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, District, and Vidler mutually agree as follows:

1. Any term with initial capital letters used herein but not otherwise defined herein shall have the meaning set forth elsewhere in the Agreement.

2. Section 1(c) of the Agreement is hereby amended and restated in its entirety to read as follows:

In consideration of the District agreeing to dedicate the District Portion to serve CSI's development in the Coyote Springs Valley ("**Coyote Springs Development**"), CSI shall pay \$749,714.00 to the District within fifteen (15) years of the execution date of this Sixth Amendment, with no interest accruing on this amount.

Section 1(c) of the Agreement is hereby amended to provide that the obligation of CSI to pay the Standby Fee is fully and forever completed, fulfilled, terminated, and no longer an

obligation of CSI to pay, and that this obligation was satisfied with the payment made in January 2017. Provided, however, that this Standby Fee is deemed fulfilled and the District remains obligated to set-aside and hold all of the District Portion for the benefit of, and to serve the Coyote Springs Development upon CSI's completion of all terms of the Sixth Amendment. Upon completion of all terms of the Sixth Amendment, the District shall dedicate the District Portion at no further cost to serve the Coyote Springs Development. The parties agree that there will be no partial distribution of the District Portion

3. This Sixth Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.

4. If any term, covenant, condition, or provision of this Sixth Amendment is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.

5. Except as expressly set forth in this Sixth Amendment, the Agreement remains unmodified and in full force and effect.

6. This instrument may be executed in one or more counterparts, each of which when taken together shall constitute one and the same instrument.

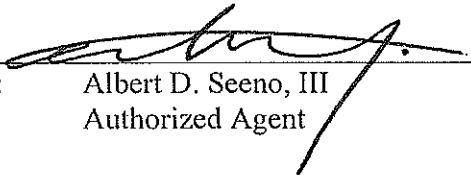
[SIGNATURES ON FOLLOWING PAGE]

②

IN WITNESS WHEREOF, the parties hereto have executed this Sixth Amendment as of the date first written above.

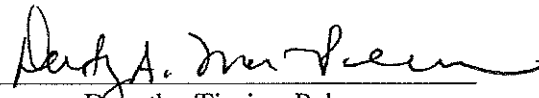
CSI:

COYOTE SPRINGS INVESTMENT, LLC,
a Nevada limited liability company

By: 
Name: Albert D. Seeno, III
Its: Authorized Agent


VIDLER:

VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 
Name: Dorothy Timian-Palmer
Its: President

DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Name: Jared Brackenburg
Its: Chairman

ATTEST:


By: 
Name: Wade Poulsen
Its: General Manager



Exhibit 30

SEVENTH AMENDMENT OF AGREEMENT

THIS SEVENTH AMENDMENT OF AGREEMENT ("*Seventh Amendment*") is made as of August 27, 2019, by and among COYOTE SPRINGS INVESTMENT, LLC, a Nevada limited liability company ("*CSI*"), LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada ("*District*"), and VIDLER WATER COMPANY, INC., a Nevada corporation ("*Vidler*").

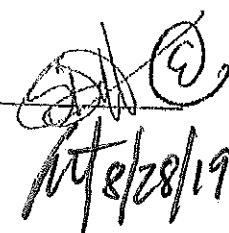
RECITALS

A. WHEREAS, CSI, District, and Vidler entered into an Agreement dated October 17, 2005 ("*Purchase Agreement*"), as amended by that certain First Amendment of Agreement by and among CSI, District, and Vidler dated November 11, 2008 ("*First Amendment*"), and that certain Second Amendment of Agreement by and among CSI, District, and Vidler dated July 31, 2009 ("*Second Amendment*"), and that certain Third Amendment of Agreement by and among CSI, District, and Vidler dated December 19, 2011 ("*Third Amendment*"), and that certain Fourth Amendment of Agreement by and among CSI, District, and Vidler dated December 9, 2014 ("*Fourth Amendment*"), that certain Fifth Amendment of Agreement dated May 10, 2016 ("*Fifth Amendment*") and that certain Sixth Amendment of Agreement dated November 20, 2017 ("*Sixth Amendment*"). The Purchase Agreement, First Amendment, Second Amendment, Third Amendment, Fourth Amendment, Fifth Amendment, Sixth Amendment and this Seventh Amendment are collectively referred as the "*Agreement*."

C. WHEREAS, CSI and the District desire to amend certain terms and conditions of the Agreement, and all parties hereto are in agreement about such matters.

NOW, THEREFORE, in consideration of the recitals set forth above and other good and valuable consideration, receipt and sufficiency of which is hereby acknowledged, CSI, District, and Vidler mutually agree as follows:

1. Any term with initial capital letters used herein but not otherwise defined herein shall have the meaning set forth elsewhere in the Agreement.
2. **Extension of Time.** The parties agree that the date by which CSI has the right, but not the obligation, to exercise its right to purchase all or a part of the Vidler 500 afa Balance is hereby extended until the date which is thirty (30) days following the date on which a final order has been issued by the Nevada State Engineer designating that the Kane Spring Valley hydrographic basin is NOT a part of the "Lower White River Flow System" administrative unit as described in Interim Order 1303. This modification and extension means that any reference in the Fifth Amendment to September 1, 2019, or 9/1/2019, or 9/1/19, is hereby modified and amended to mean the date described in this Section 2 of this Seventh Amendment. There is no cost or further extension fee due or owing or to be paid for this extension of time.
3. This Seventh Amendment shall be construed and interpreted in accordance with the laws of the State of Nevada.
4. If any term, covenant, condition, or provision of this Seventh Amendment is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the terms, covenants, conditions, and provisions shall remain of full force and effect and in no way affected, impaired, or invalidated.

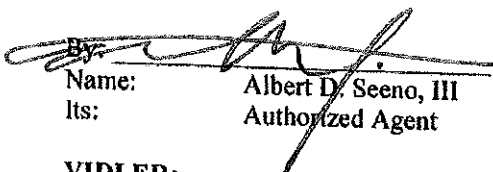

8/28/19

5. Any conflict between any other term of the Purchase Agreement, or the First, Second, Third, Fourth, Fifth, or Sixth Amendments and this Seventh Amendment shall be resolved in favor of this Seventh Amendment. Except as expressly set forth in this Seventh Amendment, the Agreement, as amended, remains unmodified and in full force and effect.
6. This instrument may be executed in one or more counterparts, each of which when taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Seventh Amendment as of the date first written above.

CSI:

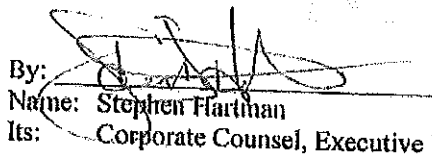
COYOTE SPRINGS INVESTMENT, LLC,
a Nevada limited liability company

By: 
Name: Albert D. Seeno, III
Its: Authorized Agent

Date: 8/28/19

VIDLER:

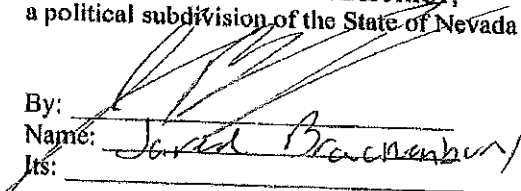
VIDLER WATER COMPANY, INC.,
a Nevada corporation

By: 
Name: Stephen Hartman
Its: Corporate Counsel, Executive Vice President Corporate Development

Date: 8-28-19

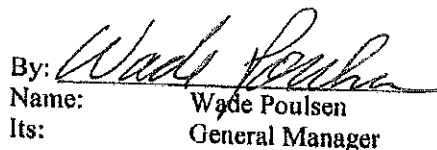
DISTRICT:

LINCOLN COUNTY WATER DISTRICT,
a political subdivision of the State of Nevada

By: 
Name: David Brannenbury
Its: _____

Date: 9-16-19

ATTEST:

By: 
Name: Wade Poulsen
Its: General Manager

Date: 9/16/19

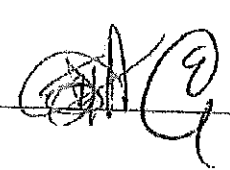


Exhibit 31

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

IN THE MATTER OF APPLICATIONS)
54075 AND 54076 FILED TO)
APPROPRIATE UNDERGROUND WATER)
FROM THE CALIFORNIA WASH HYDROGRAPHIC)
AREA (218), CLARK COUNTY, NEVADA)

RULING

#5115

GENERAL

I.

Application 54075 was filed on October 17, 1989, by the Las Vegas Valley Water District ("LVVWD") to appropriate 10 cubic feet per second (cfs) of the water from the "underground rock aquifer" within the California Wash Hydrographic Area for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties, as more specifically described and defined within NRS § 243.035-243.040 (Clark), 243.210-243.225 (Lincoln), 243.365-243.385 (White Pine) and 243.275-243.315 (Nye). The proposed point of diversion is described as being located within the NE¼ SW¼ of Section 4, T.16S., R.66E., M.D.B. & M.¹ In Item 12, the remarks section of the application, it indicates that the water sought under the application shall be placed to beneficial use within the Las Vegas Valley Water District service area as set forth in Chapter 752, Statutes of Nevada 1989, or as may be amended. Further, that the water may also be served and beneficially used by lawful users within Lincoln, Nye and White Pine Counties, and that water would be commingled with other water rights owned or served by the applicant or its designee. By letter dated March 22, 1990, the applicant further indicated, in reference to Item 12, that the approximate number of persons to be served is 800,000 in addition to the current service for approximately 618,000 persons, that the applications seek all the unappropriated water within the particular groundwater basins in the which water rights are sought and that the projected

¹ File No. 54075, official records in the Office of the State Engineer.

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population of the Clark County service area at the time of the 1990 letter was estimated to be 1,400,000 persons by the year 2020.

II.

Application 54076 was filed on October 17, 1989, by the LVVWD to appropriate 10 cfs of the water from the underground rock aquifer within the California Wash Hydrographic Area for municipal and domestic purposes within the Clark, Lincoln, Nye and White Pine Counties. The proposed point of diversion is described as being located within the NW¼ NW¼ of Section 16, T.15S., R.64E., M.D.B. & M.² The Item 12 remarks are the same as those found under Application 54075.

III.

By letter dated March 26, 2002, the LVVWD requested the State Engineer proceed with action on Applications 54075 and 54076 filed to appropriate a total of 14,480 acre-feet annually.³ The LVVWD requested that, in the event the permits are issued for less than the amount requested, the State Engineer withhold final action on the remaining portion of the ground water applied for until such time as definitive data on the availability of additional ground water in Basin 218 is available.

The LVVWD indicated that it intends to make any permits issued under these applications available to the Moapa Band of Paiutes provided that a settlement agreement between the Tribe and the LVVWD has been finalized. The LVVWD further provided that, although these two applications were filed as part of what has come to be known as the Cooperative Water Project, development needs along the I-15 corridor and continued growth in the northern section of the Las Vegas Valley have caused the LVVWD and Southern

² File No. 54076, official records in the Office of the State Engineer.

³ Letter dated March 26, 2002, from David Donnelly to State Engineer. File Nos. 54075 and 54076, official records in the Office of the State Engineer.

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Page 3

Nevada Water Authority ("SNWA") to evaluate resource opportunities in relative proximity to these areas separately from the Cooperative Water Project, as reflected in the 2002 SNWA Resource Plan.⁴

IV.

Application 54075 was protested by the Unincorporated Town of Pahrump, the United States Department of Interior, National Park Service, the United States Fish and Wildlife Service, the United States Department of Interior, Bureau of Land Management, the County of Nye, the County of White Pine and the City of Ely, the Moapa Band of Paiute Indians, Fred Landau, the Ely Shoshone Tribe, the City of Caliente, and the Lincoln County Board of Commissioners.

Application 54076 was protested by the Unincorporated Town of Pahrump, the United States Department of Interior, National Park Service, the United States Fish and Wildlife Service, the United States Department of Interior, Bureau of Land Management, the County of Nye, the County of White Pine and the City of Ely, the Moapa Band of Paiute Indians, Walter Galloway, the Toiyabe Chapter of the Sierra Club, and the Lincoln County Board of Commissioners.

The applications were protested on many grounds, including:

1. The applications were some of the 146 applications to appropriate water filed by the LVVWD, which combined seek 864,195 acre-feet annually of underground and surface water, and diversion of such a quantity of water would deprive the area of origin of water needed to protect and enhance its environment and economic well being, and would unnecessarily destroy environmental, ecological, scenic and recreational values the State holds in trust for its citizens.
2. The applications should not be granted in the absence of comprehensive planning.

⁴ Ibid.

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3. Approval of the applications would sanction and encourage the willful waste and inefficient use of water in the Las Vegas Valley.

4. The LVVWD has not obtained rights-of-way from the United States Department of Interior, Bureau of Land Management.

5. The LVVWD lacks the financial capability for developing the project.

6. The applications fail to include statutorily required information, specifically, a description of the place of use, the proposed works, the estimated cost of such works and the estimated time required to go to beneficial use.

7. The applications fail to contain sufficient information for the State Engineer to safeguard the public interest and that a publicly-reviewable assessment must be done of the cumulative impacts of the proposed extraction, mitigation measures needed and alternatives to the proposed extraction.

8. The population projection numbers are unrealistic.

9. The applications would allow the LVVWD to "lock up" vital water resources for possible use in the distant future beyond current planning horizons.

10. The applications substantially overstate future water demand needs.

11. Further study is needed because the potential effects are impossible to anticipate.

12. The granting of the applications would destroy the economic and growth potential of the hydrographic basin.

13. The public interest will not be served if the water and water-related resources in the Death Valley National Monument and the Lake Mead National Recreational Area are diminished or impaired as a result of the appropriations.

14. The applications will eventually reduce or eliminate the flows from springs, which are discharge areas for a regional groundwater flow system upon which the National Park Service

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claims senior appropriative and implied Federal reserved water rights.

15. The proposed diversions are from the carbonate-rock province of Nevada that is typified by complex, interbasin, regional-flow systems that include both basin-fill and carbonate-rock aquifers along with interbasin flows that are poorly defined, and the diversions will reduce the interbasin flows, and modify the direction of groundwater movement in adjoining and hydraulically connected basins thereby reducing spring and stream flows.

16. The available scientific literature is not adequate to reasonably assure that the proposed diversions will not impact senior rights and water resources.

17. As of December 1988 the committed diversions in California Wash were 510 acre-feet annually (afa) with an estimated perennial yield of 100 afa and the sum of the applications and the committed diversions will exceed the perennial yield of the groundwater basin; therefore, there is no water available for appropriation.

18. It is unclear whether the amount contemplated in the applications is necessary and reasonably required for the proposed purposes.

19. The granting of the applications will lower the water table, sanction water mining, degrade water quality, cause negative hydraulic gradient influences, threaten springs and seeps and phreatophytes, which provide water and habitat critical to the survival of wildlife including, endangered species and grazing livestock.

20. The applications would create air contamination and pollution in violation of State and Federal statutes.

21. The applications will cause water rates to go up thereby causing demand to go down thereby rendering the water unnecessary.

22. Previous applications from California Wash Hydrographic Basin have been denied.

23. The applications will negatively impact Nevada's environment.

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24. The LVVWD has not shown a need for the water or that the project is feasible.

25. Until the claims under the Treaty of Ruby Valley (1863) are adjudicated the applications are premature.

FINDINGS OF FACT

I.

By letter dated April 5, 2002, legal counsel for the Federal agencies, U.S. Department of Interior, Bureau of Land Management, Fish and Wildlife Service and National Park Service requested that the State Engineer hold a public administrative hearing before acting on the applications, because they have scientific information on water availability in California Wash. The request for a public hearing appears to be contradictory to other comments in the letter, which indicate the Federal agencies want to discuss settlement with the Las Vegas Valley Water District. If they settle, the information would not be presented at the administrative hearing.

In July and August of 2001, nearly four weeks of public administrative hearings were conducted on applications filed by the Las Vegas Valley Water District (Applications 54055-54059, inclusive) and Coyote Springs Investment, LLC (Applications 63272-63276, inclusive, and 63867-63876, inclusive), which together request to appropriate approximately 135,000 acre-feet of water annually within the Coyote Springs Valley Hydrographic Basin. Those hearings were on applications that requested to appropriate water from a regional source of water, the carbonate-rock aquifer system, the same source the applicant hopes to tap under these applications.⁵ The result of those hearings was the issuance of

⁵ Transcript, public administrative hearings before the State Engineer, July 16-24, August 20-24, 27-28, 31, 2001, official records Office of the State Engineer.

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State Engineer's Order No. 1169⁶, pursuant to which the State Engineer ordered holding in abeyance applications for additional water rights from the carbonate-rock aquifer in most of the basins surrounding California Wash. The basis for the Order was that there is insufficient scientific evidence to proceed with additional appropriations until those water rights that have been permitted are pumped and monitored, thereby providing evidence of the effect of the exercise of the water rights already issued. Nothing has changed since the issuance of that order, which the State Engineer believes will provide additional evidence of value other rather than just adding to the theoretical evidence already presented.

Nevada Revised Statute § 533.365 provides that the State Engineer shall consider a protest timely filed, but that it is within his discretion whether or not to hold an administrative hearing as to any particular water right application. The State Engineer finds that he does not believe an administrative hearing will add to the knowledge already held. The scientific evidence previously presented was not definitive as to the availability of water within the carbonate-rock aquifer and the effects of pumping. The State Engineer finds there is sufficient information available in the records of the Division of Water Resources and in reports prepared by the United States Geological Survey in conjunction with the State of Nevada, Las Vegas Valley Water District, City of North Las Vegas, U.S. National Park Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Desert Research Institute, U.S. Bureau of Reclamation, U.S. Air Force and U.S. Bureau of Indian Affairs, and in conjunction with the weeks of public administrative hearings held in the summer of 2001 to review these specific applications, and that an administrative hearing in this instance is not necessary.

⁶ State Engineer's Order No. 1169, dated March 8, 2002, official records in the Office of the State Engineer.

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However, the State Engineer finds the decision not to hold a hearing does not preclude the need for additional study.

II.

When the State Engineer analyzes whether water is available for appropriation from the underground sources of water in Nevada, the first analysis addresses the perennial yield of the particular groundwater basin. The perennial yield of a hydrologic basin may be defined as the maximum amount of ground water that can be salvaged over the long term without depleting the groundwater reservoir. Perennial yield is ultimately limited to the maximum amount of natural recharge that can be salvaged for beneficial use. If the perennial yield is continually exceeded, groundwater levels will decline.⁷ Withdrawals of ground water in excess of the perennial yield contribute to adverse conditions such as water quality degradation, storage depletion, diminishing yield of wells, increased economic pumping lifts, land subsidence and possible reversal of groundwater gradients, which could result in significant changes in the recharge-discharge relationship. Presently, scientists can estimate the perennial yield of a groundwater basin by two distinct methods: recharge to the groundwater basin from precipitation, and discharge from the groundwater basin by spring/surface discharge, interbasin flow, consumption by plants tapping the ground water and consumption by man.

Reconnaissance Report 50 estimates that California Wash has an annual recharge of less than 100 acre-feet from precipitation and that no water comes into the valley-fill reservoir from subsurface inflow.⁸ The Report provides that inflow is

⁷ State Engineer's Office, Water for Nevada, State of Nevada Water Planning Report No. 3, p. 13, Oct. 1971.

⁸ F.E. Rush, Water Resources-Reconnaissance Series Report 50, Water-Resources Appraisal of the Lower Moapa-Lake Mead Area, Clark County, Nevada, United States Geological Survey, pp. 25, 26, 28, 41 (1968).

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contributed to California Wash from Garnet Valley (Basin 216), Muddy River Springs area (Basin 219), and Lower Meadow Valley Wash (Basin 205) through the alluvium and carbonate rocks.⁹ Reconnaissance Report 50 studied the region in which California Wash is located and indicated the following.

All the areas included in this report¹⁰ apparently drain in the subsurface to either the Muddy River or directly to Lake Mead... Hidden Valley probably drains to Garnet Valley, which in turn probably drains eastward toward California Wash... Subsurface drainage may be both northeastward from California Wash Area toward the Muddy River and southeastward toward Lake Mead... Ground water may enter the report area at several places: (1) along Meadow Valley Wash, flowing through alluvium, (2) along the Muddy River, flowing through alluvium, and (3) from Las Vegas Valley, near Lake Mead Base..., flowing through carbonate rocks, and (4) from Las Vegas Valley, along Las Vegas Wash flowing through alluvium. All these flow quantities are probably small.¹¹

However, the "possibility of salvaging all or part of the outflow by pumping is dependent upon the nature and extent of the transmitting lithology, which is generally unknown. For the purpose of this reconnaissance it is assumed that the subsurface geohydrologic controls might permit salvage of half of the outflow by pumping."¹²

Testimony and evidence from the July and August 2001 hearings previously referenced indicated that using the standard Maxey-

⁹ Id. at 26.

¹⁰ The Reconnaissance Series Report 50 covered the Lower Moapa-Lake Mead Area of Clark County, Nevada, including Hidden, Garnet, and Lower Moapa Valleys, Black Mountains and Gold Butte Areas, California Wash and Greasewood Basin. F.E. Rush, Water Resources-Reconnaissance Series Report 50, Water-Resources Appraisal of the Lower Moapa-Lake Mead Area, Clark County, Nevada, United States Geological Survey, at 1 (1968).

¹¹ Id. at 13.

¹² Id. at 49-51.

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Eakin technique for estimation of groundwater recharge from precipitation, the recharge for the Coyote Springs Valley, Muddy River Springs, Hidden Valley, Garnet Valley, Black Mountains, and Lower Moapa Valley areas combined is approximately 3,550 acre-feet annually. Using the modified Maxey-Eakin technique introduced at the administrative hearing (known as the Donovan-Katzer 2000 technique), the recharge is estimated at approximately 6,761 acre-feet annually for the combined areas.¹³ California Wash adds an additional 100 to 311 acre-feet under the two techniques.

The State Engineer finds using the Maxey-Eakin method of estimating recharge, the recharge to the area comprised of Coyote Springs Valley, Muddy River Springs, Hidden Valley, Garnet Valley, Black Mountains, Lower Moapa Valley and California Wash is approximately 3,650 acre-feet annually. The Donovan-Katzer 2000 technique estimates the recharge to be approximately 7,072 acre-feet annually for the combined areas.

III.

Another method for estimating the total quantity of water available for appropriation uses interbasin flow and discharge flow as a method to approximate the annual safe yield. Ground water is discharged by the natural processes of transpiration of vegetation, evaporation from the soil and free-water surfaces, and possible underflow from one groundwater basin to another. This method is addressed in the context of the discussion below.

The applications indicate the water proposed for appropriation under these applications is from a source known as a carbonate-rock aquifer, which is a source that was not generally considered in the analysis of water available for appropriation in these particular groundwater basins. In 1984, the Water Resources Division of the United States Department of Interior, Geological Survey proposed a 10-year investigation of the entire Carbonate

¹³ See, testimony of Terry Katzer and David Donovan; Exhibit 54, p. 4-25, public administrative hearing before the State Engineer, July 16-24, 2001.

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Terrane.¹⁴ The study was proposed because, the water resources of the Carbonate Terrane were not well defined, the data was sparse and the hydrology and geology of the area are complex. It has been known since 1984 that to arrive at some reasonable understanding of the carbonate-rock aquifer system, substantial amounts of money would be required to develop the science, a significant period of study would be required, and that "unless this understanding is reached, the development of carbonate water is risky and the resultant effects may be disastrous for the developers and current users."¹⁵

It was believed that developing a better scientific understanding would identify possible additional water resources that could be developed, would further the attempts to define the perennial yield of this water source, would protect current users, would allow the State Engineer to better understand the system, which would allow management for the benefit of all the people, and would further the knowledge needed by the Federal agencies for protection of their water rights and water-resource related interests.

It was noted in the proposal referenced above, that this was not the first time a comprehensive investigation of the hydrology of the Carbonate Terrane in Nevada was considered, and that area-wide studies had been conducted by four different organizations to date.¹⁶ The 1984 United States Geological Survey memo indicates

¹⁴ Memorandum dated August 3, 1984, from Terry Katzer, Nevada Office Chief, Water Resources Division, United States Department of Interior Geological Survey, Carson City, Nevada, to Members of the Carbonate Terrane Society.

¹⁵ Ibid.

¹⁶ Those organizations were identified as:
(1) the Desert Research Institute (Mifflin 1968, Hess and Mifflin 1978);
(2) the United States Air Force (M-X Multiple Protective Shelter Water Resources Program 1983);
(3) the United States Geological Survey (Great Basin Regional Aquifer System Analysis, Harrill and others 1982), and;
(4) the United States Bureau of Reclamation (Southern Nevada Deep Carbonate

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that given the "myriad possible avenues of hydrologic connection between the various aquifers and flow systems and the uncertainties of recharge and discharge mechanisms and processes, an investigation of the hydrology of the carbonate-rock aquifers in Nevada is undoubtedly a difficult undertaking."¹⁷

An investigation of the carbonate-rock aquifer system is additionally complicated by factors including:

- basic hydrologic data such as groundwater levels in both the basin-fill aquifers and carbonate-rock aquifers, and reliable flow measurements for important springs and major streams are scarce or infrequently obtained in much of the area;
- secondary hydrologic and other data, such as hydraulic parameters, geophysical and geochemical, are lacking in many areas;
- the geometry, properties, and boundaries of the carbonate-rock and basin-fill reservoirs are generally unknown, and definition of these properties can be expensive and difficult;
- climatic conditions today are inadequately defined (particularly at higher altitudes) and conditions during the development of the flow paths within the deep-rock aquifers and flow paths within the

Aquifer Study 1984).

These studies were based on many smaller scale studies, including:

- (1) the early studies of the White River flow system by Maxey and Eakin 1949, and Eakin 1966);
- (2) the numerous studies in the area between, and including, the Nevada Test Site and Death Valley by Hunt and Robinson 1960, Eakin and other 1963, Winograd and Thordarson 1975, Classen 1983, and;
- (3) the investigations of the geohydrology of Central Nevada associated with the Atomic Energy Commission's Central Nevada Test Area, Fiero and Illian 1968 and 1969.

Numerous other studies of individual or small groups of basins have also been conducted by private and public organizations, and information has been gathered from drilling for oil and mineral exploration.

¹⁷ Memorandum dated August 3, 1984, from Terry Katzer, Nevada Office Chief, Water Resources Division, United States Department of Interior Geological Survey, Carson City, Nevada, to Members of the Carbonate Terrane Society, Attachment at 7.

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carbonate-rock aquifer are even more uncertain;

- uncertainties and inaccuracies exist in current methods of estimating precipitation;
- uncertainties and inaccuracies exist in current methods of estimating groundwater inflow and recharge;
- uncertainties and inaccuracies exist in current methods of estimating groundwater outflow and evaporative discharge;
- only a small number of wells tap the deep carbonate rocks;
- because there has been no significant historical pumping of ground water from the carbonate-rock aquifer system, groundwater models can only be used as a limited predictive tool for estimating the principle location and magnitude of impact of pumping ground water from the system;
- limited stresses on the water resources of the area under current development conditions allow hydrologists information only on the narrow band of system responses to natural conditions; and
- the relationship between geothermal systems and the deep carbonate-rock aquifers and groundwater flow systems is not well understood.

The State Engineer finds that as of 1984 the carbonate-rock aquifers were known to exist, not much specific data existed on the carbonate-rock aquifers or their relationship to the basin-fill/alluvial aquifers and it was well known that further study was needed to understand the water systems. The State Engineer finds that not much has changed to the present time.

IV.

In 1985, the Nevada Legislature authorized a program for the study and testing of the carbonate-rock aquifers of eastern and southern Nevada. The program was a cooperative effort between the State of Nevada and the Federal Government. The overall plan for the program was to study the carbonate-rock aquifers of southern, east-central, and northeastern Nevada as separate phases of work, with a summary of findings to be prepared at the end of each

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phase. A report, Distribution of Carbonate-Rock Aquifers in Southern Nevada and the Potential for their Development, Summary of Findings, 1985-1988,¹⁸ summarized the findings of the first phase of the study, which assessed the resources of the carbonate-rock aquifers of southern Nevada. The summary brought together results from more than 20 technical reports produced during the study and indicated that:

The rocks that compose the carbonate-rock aquifers are layers of limestone and dolomite that were deposited hundreds of millions of years ago in much of the eastern Great Basin. Subsequently, the carbonate rocks were much deformed; as a result, they no longer exist as continuous layers beneath the region. Instead, they have been pulled apart to form a few large areas of thick and relatively continuous carbonate rocks. Separating these areas are noncarbonate rocks, within which are isolated mountain-sized blocks of carbonate rock.

Beneath southern Nevada, the thick carbonate-rock layers are continuous enough to transmit ground water at regional scales only beneath a north-south "corridor" 60-90 miles wide that extends southward from east-central Nevada to and beyond the Spring Mountains area west of Las Vegas. Within this corridor are the two major regional flow systems of southern Nevada: the Ash Meadows-Death Valley system and the White River-Muddy River Springs system. These flow systems link the ground water beneath dozens of valleys and over distances exceeding 200 miles. Flow in these systems probably is concentrated along highly transmissive zones associated with (1) recently active faults and (2) confluences of flow near major warm-water springs.

Outside of the corridor, the carbonate rocks are present primarily as isolated blocks that form aquifers of limited extent, recharged mostly by local precipitation.

* * *

¹⁸ Michael D. Dettinger, Distribution of Carbonate-Rock Aquifers in Southern Nevada and the Potential for their Development, Summary of Findings, 1985-1988, Summary Report No. 1, United States Geological Survey, Department of Interior and Desert Research Institute, University of Nevada System, Forward, 1989.

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Large-scale development (sustained withdrawals) of water from the carbonate-rock aquifers would result in water-level declines and cause the depletion of large quantities of stored water. Ultimately, these declines would cause reductions in the flow of warm-water springs that discharge from the regional aquifers. Storage in other nearby aquifers also might be depleted, and water levels in those other aquifers could decline. In contrast, isolated smaller groundwater developments, or developments that withdraw ground water for only a shorttime, may result in water-level declines and springflow reductions of manageable or acceptable magnitude.

Confidence in predictions of the effects of development, however, is low; and it will remain low until observations of the initial hydrologic results of development are analyzed. A strategy of staging developments gradually and adequately monitoring the resulting hydrologic conditions would provide information that eventually could be used to improve confidence in the predictions.¹⁹

The committed groundwater resource in the form of permits and certificates issued by the State Engineer to appropriate underground water from the California Wash Hydrographic Basin currently exceeds 567 acre feet annually.²⁰ The State Engineer has previously granted groundwater permits, which authorize use of underground water in an area underlain by the carbonate-rock aquifer system or directly from the carbonate-rock aquifer system in the following quantities:

¹⁹ *Id.* at 1-2.

²⁰ Hydrographic Basin Abstract, Basin 218, official records in the Office of the State Engineer, April 9, 2002. It should be noted that only 477 acre-feet is for the permanent use of water, the other water use permitted is for environmental clean-up and mining and milling, which are considered non-permanent uses of water.

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Coyote Springs Valley (Basin 210)	16,300	acre-feet
Black Mountain (Basin 215)	10,216	acre-feet
Garnet Valley (Basin 216)	3,380	acre-feet
Hidden Valley (Basin 217)	2,200	acre-feet ²¹
Muddy River Springs aka Upper Moapa Valley (Basin 219)	14,756	acre-feet
Lower Moapa Valley (Basin 220)	5,813	acre-feet
California Wash (Basin 218)	<u>477</u>	<u>acre-feet</u>
Total	50,942	acre-feet

The State Engineer finds, in a straight perennial yield analysis, that existing groundwater rights in the California Wash groundwater basin exceed the perennial yield of the groundwater basin. However, the State Engineer further finds that appropriations from the carbonate-rock aquifer are being requested, and evidence has been presented to him that new estimates of the system yield need to be established. The State Engineer finds, given the complexities of the carbonate-rock aquifer system, further site specific information (one valley at a time) is needed and will provide information not presently available due to the limited development of the resource. The State Engineer finds that due to the complexities of the system and potential interaction between the carbonate-rock aquifer and the alluvial aquifer, further analysis is required in order to understand what potential, if any, exists for the appropriation of more water from the California Wash groundwater basin.

The State Engineer finds because assurances that the adverse effects of development will not overshadow the benefits cannot be made with a high degree of confidence, development of the carbonate-rock aquifer system must be undertaken in gradual stages together with adequate monitoring in order to predict the effects

²¹ This 2,200 acre-feet is combined with 2,200 acre-feet issued in Garnet Valley for a total of 2,200 afa between the two basins.

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of continued or increased development with a higher degree of confidence.

V.

The State Engineer finds that staging development gradually means not developing the resources in one large step, but rather starting with small projects that are possibly augmented gradually if conditions and confidence warrant. This approach allows the effects of development to be observed and analyzed continually, so that the benefits and adverse effects of development can be judged and the effects reversed or mitigated if they prove to be detrimental to existing rights and the environment. This approach would hopefully avoid the havoc that could be created by the curtailment of water use by those who have come to rely on it if impacts occur requiring curtailment of the water use.

VI.

The 1995 Water-Resources Investigations Report 91-4146²² estimates the total water budget of all southern Nevada aquifers from the natural recharge to the mountains and subsurface inflow to the study area²³ to be about 160,000 acre-feet annually, and discharges from major discharge areas to be about 77,000 acre-feet annually.²⁴ However, it is believed that all of the recharge and subsurface inflow cannot be captured for use.

²² Michael D. Dettinger, et al., Distribution of Carbonate-Rock Aquifers and the Potential for Their Development, Southern Nevada and Adjacent Parts of California, Arizona and Utah, U.S. Geological Survey, Water-Resources Investigations Report 91-4146, p. 50, 1995.

²³ The study area is defined on p. 5 of Water-Resources Investigations Report 91-4146 to be most of southern Nevada south of Tonopah and Pioche.

²⁴ Discharge areas are identified as Muddy River Springs 36,000 acre-feet annually (afa) of spring flow, Blue Point Spring 240 afa of spring flow, Rogers Spring 920 afa of spring flow, Frenchman Mountain 2,100 afa of underflow toward Colorado River, Pahrump Valley 18,000 afa of underflow to California, Ash Meadows 17,000 afa of spring flow and evapotranspiration, Amargosa Desert 3,000 afa of underflow to Death Valley, and Grapevine Canyon 400 afa of underflow to Death Valley. Water-Resources Investigations Report 91-4146 at 53.

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As previously noted, the testimony and evidence from the July and August 2001 administrative hearings on Coyote Springs Valley Hydrographic Basin indicated that the groundwater recharge from precipitation for the Coyote Springs Valley, Muddy River Springs, Hidden Valley, Garnet Valley, Black Mountains, Lower Moapa Valley and California Wash areas combined is approximately 3,650 acre-feet up to 7,072 acre-feet annually depending on the method used for calculation.

Testimony and evidence from those hearings further indicated that approximately 50,000 acre-feet of groundwater inflow comes into the Coyote Springs Valley from northern groundwater basins and approximately 53,000 acre-feet annually outflows²⁵ of which a portion may be available for capture from the underflow. While testimony presented indicated a belief that significant quantities of water may be available for capture from storage, it is unknown what quantity that would be, and if any underground water could be appropriated without unreasonable and irreversible impacts.²⁶ The testimony and evidence indicated that a portion of the groundwater outflow from Coyote Springs Valley is believed to discharge at a rate of approximately 37,000 acre-feet annually at the Muddy River Springs area and approximately 16,000 to 17,000 acre-feet annually flows to groundwater basins further south, possibly to Garnet Valley, Hidden Valley and California Wash Hydrographic Basins.²⁷

The approximately 37,000 acre-feet annually of water discharged from the large springs located near the central part of the Upper Moapa Valley (aka as the Muddy River Springs area - hydrographic basin 219) is fully appropriated pursuant to the

²⁵ Taking into account for 4,000 afa of in-basin recharge and 1,000 afa of evapotranspiration.

²⁶ See, testimony of Terry Katzer and David Donovan, public administrative hearing before the State Engineer, July 16-24, 2001.

²⁷ Ibid.

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Muddy River Decree,²⁸ and, therefore, is not available for appropriation. It is believed that the source of water discharged originates mainly from the carbonate-rock aquifer system, but it is unknown if the discharge originates solely from the White River Flow System or is also influenced by discharge from the Meadow Valley Flow System or if there is influence from the alluvial aquifer. Further, there are listed endangered and/or potential threatened species that exist in the Muddy Springs/Muddy River area.

The testimony and evidence from the hearing on the LVVWD's applications in Coyote Springs Valley indicated that their own expert witnesses were unable to make a suggestion to the State Engineer as to what part of the water budget could be captured without a great deal of uncertainty, and that the question cannot be resolved without stressing the system.²⁹ Further, the State Engineer's ability to determine if development of the carbonate-rock aquifer system will impact existing rights is dependent on how the water rights are brought "on-line" and monitored.³⁰ Today, little is still known about the hydrologic connectivity between the groundwater basins, virtually nothing is known about the mountain blocks, estimates of recharge to the area can vary by a factor of two, there is probably some connectivity between the water in the carbonate-rock aquifers and the alluvial groundwater basins,³¹ there is still little data available, and not much has changed from the information known in 1984.

²⁸ Judgment and Decree, In the Matter of the Determination of the Relative Rights In and To the Waters of the Muddy River and Its Tributaries in Clark County, State of Nevada, March 12, 1920, Tenth Judicial District Court of the State of Nevada, In and For the County of Clark.

²⁹ See, testimony of Terry Katzer and David Donovan, public administrative hearing before the State Engineer, July 16-24, 2001.

³⁰ Ibid.

³¹ Ibid.

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As previously noted, on March 8, 2002, the State Engineer issued State Engineer's Order No. 1169³² by which he ordered that all applications pending and any new filings for the appropriation of water from the carbonate-rock aquifer system in Coyote Springs Valley (Basin 210), Black Mountains Area (Basin 215), Garnet Valley (Basin 216), Hidden Valley (Basin 217), Muddy River Springs aka as Upper Moapa Valley (Basin 219), and Lower Moapa Valley (Basin 220) would be held in abeyance until further information is obtained by stressing the aquifer by the pumping of the water under those water right permits already issued to appropriate water from the carbonate-rock aquifer system. While the studies proposed in 1985 were a beginning, those studies indicated that large-scale developments with sustained withdrawals of water from the carbonate-rock aquifers would result in water-level declines and depletion of stored water, but that isolated smaller groundwater developments or developments of limited duration may result in water-level declines and springflow reductions of manageable and acceptable magnitudes. However, very little additional information based on hard science has been produced since that time.

The State Engineer informed applicants for additional water from the above-referenced hydrographic basins of the need for additional study before a final determination can be made on carbonate-rock aquifer system water right applications in the referenced basins. The purpose of the study is to analyze the effect of pumping under those water rights already issued for appropriation of water from the carbonate-rock aquifer. The entities ordered to participate in the study are at a minimum to include: the LVVWD, SNWA, Coyote Springs Investment, LLC, Nevada Power Company, and Moapa Valley Water District. The study is to cover a 5-year minimum period during which at least 50% of the

³² Official records in the Office of the State Engineer.

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water rights currently permitted in the Coyote Springs Valley groundwater basin are pumped for at least 2 consecutive years.

During the administrative hearings in the summer of 2001, evidence was presented by witnesses for the Moapa Band of Paiute Indians indicating a belief that additional water comes into California Wash above the previous estimates of perennial yield. But, their testimony also indicated a belief there is already a downward trend in water levels for the carbonate-rock aquifer during periods of heavy pumping at the Arrow Canyon well, as was shown in the Las Vegas Valley Water District's model presented at the hearing³³, and they are seeing carryover drawdown, which will impact the carbonate-rock aquifer, which is filling the alluvial aquifer. However, the witnesses further indicated that there may be a substantial quantity of water available in the carbonate-rock aquifer, but if for one reason or another a drawdown is caused near the Muddy River springs, spring flow will be influenced independent of the availability of water. These witnesses testified that future development of the carbonate-rock aquifer should be approached by pumping "whatever you can without getting into trouble," but that water should not just be appropriated upgradient of the Muddy River springs, but also downgradient in the California Wash Hydrographic Basin.³⁴ "[A]t this point all we have is ideas and concepts and yet no proof about where that inflow occurs."³⁵ These witnesses for the Moapa Band of Paiutes postulated that 6,000 acre-feet "upwells" or enter in the area of California Wash, which they believe explains isotopic data in the area.³⁶ If 16,000 to 17,000 acre-feet is believed to by-pass the

³³ See, testimony of Martin Mifflin, Henk Haitjema and Cady Johnson, public administrative hearing before the State Engineer, July 16-24, 2001, pp. 820-831.

³⁴ Id. at 925-930.

³⁵ Id. at 943.

³⁶ Id. at 944-947.

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Muddy River Springs area, the water right permits already issued in Coyote Springs Valley alone equal the estimate of the amount of carbonate flow that by-passes the region, and is not part of the flow discharged from the Muddy River Springs area. These 16,000 to 17,000 acre-feet perhaps flow through Hidden Valley, Garnet Valley and California Wash. But the witnesses for the Moapa Band of Paiutes believe there is additional water in the area of California Wash, but that evidence is speculative.

When the State Engineer issued Order No. 1169, the California Wash Hydrographic Basin was notably left out. This was done in recognition that perhaps this is the next basin in which the pumping of a small quantity of water could be permitted for stressing the carbonate-rock aquifer system, because it is downgradient of the Muddy River Springs. As the tribal witnesses believed should be done, this will enable the system to be stressed downgradient of the Muddy River Springs area in order to study the reactions to pumping from this portion of the region in conjunction with the other areas, which are to be studied under State Engineer's Order No. 1169.

The State Engineer finds that little is known as to what yield exists from the carbonate-rock aquifer and its impact on the alluvial aquifers or discharge springs of the regional area. However, based on the scientific studies to date, the experts believe there is some water that can be developed from the system, but only through slow, staged development of small amounts accompanied by significant monitoring, studying and reporting, with plans for mitigation if impacts to existing water rights are shown. The State Engineer finds while he has concerns over development of the carbonate-rock aquifer system, lack of knowledge should not stop the development of the carbonate-rock aquifers in light of their potential as a significant resource in one of the driest places in the nation. However, development should proceed in relatively small quantities and cautiously.

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Therefore, the State Engineer finds he will not consider granting both applications as requested or granting any one application for the diversion rate or quantity requested.

VII.

As noted, by letter dated March 26, 2002, the LVVWD requested the State Engineer proceed with action on Applications 54075 and 54076, which were filed to appropriate 14,480 acre-feet annually.³⁷

The LVVWD requested that in the event the permits are issued for less than the amount requested, that the State Engineer withhold final action on the remaining portion of the ground water applied for until such time as definitive data on the availability of additional ground water in Basin 218 is available. The LVVWD indicated that it intends to make any permits issued under these applications available to the Moapa Band of Paiutes provided that a settlement agreement³⁸ between the Tribe and the LVVWD has been finalized. The settlement agreement indicates the Tribe wishes to develop the Reservation, including without limitation the development of a natural gas-fired power plant. However, the LVVWD further provided that, although these two applications were filed as part of what has come to be known as the Cooperative Water Project, development along the I-15 corridor and continued growth in the north section of Las Vegas have caused the LVVWD and SNWA to evaluate resource opportunities in relative proximity to these areas separately from the Cooperative Water Project, as reflected in the 2002 SNWA Resource Plan.

In State Engineer's Ruling No. 5008, which addressed the LVVWD's request to appropriate water in Hidden and Garnet Valleys,

³⁷ Letter dated March 26, 2002, from David Donnelly to State Engineer. File Nos. 54075 and 54076, official records in the Office of the State Engineer.

³⁸ See, Draft Settlement Agreement attached to letter from David Donnelly to State Engineer, dated March 26, 2002. File Nos. 54075 and 54076, official records in the Office of the State Engineer.

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the State Engineer noted that the national news of late is filled with stories as to the lack of sufficient power generating resources in the western United States. Ruling No. 5008 includes significant discussion about the power situation, as it was believed to exist one year ago, and references Governor Guinn's February 22, 2001, energy plan for Nevada, which includes expediting the construction of some of the proposed power plants and negotiating for some of that power to remain in Nevada.³⁹ State Engineer's Ruling No. 5008 was premised on that immediate need for power generation, and that action on the applications in Hidden and Garnet Valleys would allow the LVVWD to provide water resources for the construction of realistic power generation projects, which will use water efficient, air-cooled technology, in exchange for a portion of the energy remaining in Nevada. In Ruling No. 5008, the State Engineer found that evidence indicated a power crisis was on the horizon for Southern Nevada.

In the LVVWD's request that the State Engineer act on Applications 54075 and 54076, it indicates that it is the LVVWD's intention to make any permits issued under these applications available to the Moapa Band of Paiutes under a proposed settlement, which addresses ground water and surface water issues of the Tribe. The proposed settlement indicates that the Tribe wishes to develop a natural-gas fired power plant on its reservation, but seeks an initial use of at least 10,000 acre-feet annually, indicating the Tribe is likely planning a water-cooled power plant.

Technology is available, which can produce significant amounts of electricity using air-cooled systems. This technology uses significantly less quantities of water. The State Engineer recognizes there are unique issues when dealing with tribal

³⁹ Letter from David Donnelly, Deputy General Manager, Las Vegas Valley Water District to Hugh Ricci, State Engineer, dated March 5, 2001. File Nos. 54073 and 54074, official records of the Office of the State Engineer.

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claims, but does not believe it is prudent to use substantial quantities of newly appropriated ground water for water-cooled power plants in one of the driest places in the nation, particularly with the uncertainty as to what quantity of water is available from the resource, if any. However, the State Engineer notes that his analysis may not be the same in the context of a change application of water rights that had previously been placed to beneficial use. The State Engineer finds that until a determination can be made as to the quantity of water available, any amount granted for appropriation must be limited as was done in State Engineer's Ruling No. 5008 and State Engineer's Order No. 1169.

The State Engineer finds there is no definitive evidence of a substantial quantity of water being available from the groundwater resources of the California Wash Hydrographic Basin. The State Engineer finds from the evidence and testimony presented during the July and August 2001 administrative hearings that California Wash is perhaps the next best place to begin stressing the carbonate-rock aquifer system, but with the same small quantity of water, monitoring and mitigation provisions as set forth in State Engineer's Ruling No. 5008. The State Engineer finds that whether the applicant decides to pursue a settlement agreement with the Moapa Band of Paiutes is not presently before him, but further finds there are sufficient reasons to grant the LVVWD a municipal water right for a small quantity of water from this groundwater basin.

VIII.

Many of the protestants alleged that these applications were two of the 146 filed by the Las Vegas Valley Water District, which when combined, sought a quantity of water that would deprive the area of origin of water needed to protect and enhance its environment and economic well being, and that the diversion would

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unnecessarily destroy environmental, ecological, scenic and recreational values the State holds in trust for its citizens.

The State Engineer finds the manner and place of use under the applications as filed is for municipal and domestic purposes within Clark, Lincoln, Nye and White Pine Counties. The State Engineer finds that the service area of the Las Vegas Valley Water District is solely Clark County.⁴⁰ The State Engineer finds there is evidence from the July 2001 administrative hearings and the 2002 SNWA Resource Plan,⁴¹ which indicates that the LVVWD must pursue other water resource options. The State Engineer finds, until more is known about whether the carbonate-rock aquifer area is a significant source of ground water or not available, it is impossible to address whether there is a need to protect and enhance the environment and economic well being of the area of origin. The State Engineer finds, until more is known about whether the carbonate-rock aquifer is a significant source of ground water that can be appropriated on a sustained basis, it is impossible to address whether the diversion would unnecessarily destroy environmental, ecological, scenic and recreational values the protestants allege the State holds in trust for its citizens.

The State Engineer finds that by issuing one of the permits requested, for a limited amount of water, and holding the other application in abeyance, progress can be made toward information gathering, while hopefully protecting the resource and other areas of concern. The State Engineer finds that the requirements of monitoring and mitigation being imposed will provide the needed information as to whether the appropriation is environmentally sound from a hydrologic standpoint. The State Engineer finds,

⁴⁰ Nevada Revised Statutes, Text of Special and Local Acts, Vol. 11, pp. 283-295.

⁴¹ Letter dated March 26, 2002, from David Donnelly to State Engineer. File Nos. 54075 and 54076, official records in the Office of the State Engineer.

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since he is only going to grant one application for a reduced quantity and is holding the other application in abeyance until the study ordered in State Engineer's Order No. 1169 is completed, he does not believe use of the water will unduly limit future growth and development in the California Wash groundwater basin but, rather will enhance growth in the basin.

IX.

Some of the protestants alleged that the applications should not be granted in the absence of comprehensive planning. The State Engineer finds there is no provision in Nevada Water Law which requires comprehensive water resource development planning prior to the granting of a water right application, and further as discussed below, that the LVVWD and the SNWA have engaged in long-range planning.

X.

Some protestants alleged that the approval of the applications would sanction and encourage the willful waste and inefficient use of water in Las Vegas Valley.

In Las Vegas, the role of conservation is critical to the region's water planning efforts. In 1990, the local water and wastewater agencies completed an extensive supply and demand projection process that resulted in public realization that the region would run out of water in fifteen years even with conservation. The need for conservation was quickly acknowledged by the public and widespread conservation efforts began in the summer of 1991. Creation of artificial lakes was banned, water waste ordinances were adopted, and lawn watering was restricted during the hotter time of the day.

* * *

To begin the shift to water-conserving rates, local water purveyors switched from flat rates to increasing block rates.

From 1991 through 1994, conservation education and water rates slowly increased. During the IRP [Integrated Resource Plan] process in 1994 and 1995, it became obvious that conservation could extend the time

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frames when additional resources and facilities are needed. As a result, the Board adopted recommendations on conservation, including one that required a 10 to 15 percent reduction in maximum day water usage by summer 2000.⁴²

Further activity towards conservation in the Las Vegas Valley has encompassed public education to reduce peak summer usage, agreeing to follow the Bureau of Reclamation's conservation measures called "Best Management Practices", waste water reuse and a xeriscape study. "A recent survey by the City of Austin, Texas of water purveyors around the nation shows the Authority's overall program is among the most comprehensive in the country."⁴³

The State Engineer finds the SNWA is taking conservation seriously as part of its overall water management plan.

XI.

Some of the protestants alleged that the LVVWD has not obtained rights-of-way from the BLM. The State Engineer finds every water right permit is conditioned on the applicant obtaining any necessary right-of-way and these applicants will not be treated any differently.

XII.

Some of the protestants alleged that the LVVWD lacks the financial capability for developing the project. This protest allegation is more relevant if the State Engineer were considering all the applications filed for the Cooperative Water Project together as one project. The State Engineer finds the issue of financial ability to develop the massive project of all the LVVWD filings is not currently relevant.

XIII.

Some of the protestants alleged that the applications failed to include statutorily required information, specifically a

⁴² Southern Nevada Water Authority 1999 Water Resource Plan, at 7-10, October 1999.

⁴³ Id. at 8.

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description of the place of use, the proposed works, the estimated cost of such works and the estimated time required to go to beneficial use. The State Engineer finds he has sufficient information to address the applications.

XIV.

Some of the protestants alleged that the applications failed to contain sufficient information for the State Engineer to safeguard the public interest and that a publicly-reviewable assessment must be done of the cumulative impacts of the proposed extraction, mitigation measures needed and alternatives to the proposed extraction. The State Engineer finds that the process envisioned by allowing relatively small amounts of water to be appropriated along with staged development and significant monitoring addresses this protest concern; however, there is nothing in the Nevada Water Law, which requires a public review assessment process. The records of the State Engineer are always available for public review.

XV.

Some of the protestants alleged that the population projection numbers are unrealistic. The applicant projected a population 1,400,000 people by the year 2020. The present population of Clark County is approximately 1,400,000 people; therefore, the State Engineer finds the population projections were not unrealistic, but rather underestimated the projected population.

XVI.

Some protestants alleged that these applications, among the others, would allow the LVVWD to "lock up" vital water resources for possible use in the distant future beyond current planning horizons, and further alleged that the applications substantially overstate future water demand needs. These applications were filed in 1989. In 1989, the LVVWD believed it was running out of additional water resources in the very near future.

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In 1987, the Nevada Legislature enacted the first water laws providing for projects, which recharge, store and recover water.⁴⁴

Recharge by the LVVWD began around 1989. In 1991, the LVVWD issued a moratorium, which prohibited any new hookups to the water system. Thus, the future water demands were not beyond current planning horizons.

Since the filing of the applications, the LVVWD, along with and as a member of the SNWA, has been involved in many varied programs to plan for the future resources of the Las Vegas Valley.

In 1991, the SNWA was formed, and the SNWA purveyors agreed that any new contract with the Secretary of the Interior for remaining unallocated water from the Colorado River would be with the SNWA and would deliver water to purveyor members and they agreed on the method of allocating any water received.⁴⁵ The remaining Colorado River water was contracted for in 1992.

In 1993 and 1994, the SNWA obtained additional Colorado River water through agreements with Southern California Edison and Basic Management, Inc., and agreements have been reached regarding reclaimed water.⁴⁶ Beginning in 1996, the Secretary of Interior declared a surplus condition on the Colorado River every year (up to the date of the October 1999 Water Resource Plan), and under the excess surplus criteria this had provided additional water for Southern Nevada.⁴⁷ Since then, the Department of Interior has issued a record of decision making the Interim Surplus Guidelines effective beginning in 2002, which will provide Colorado River water for the SNWA purveyors through 2016,⁴⁸ if a surplus is

⁴⁴ Nevada Revised Statutes § 534.250 - 534.340.

⁴⁵ Southern Nevada Water Authority 1999 Water Resource Plan, at 14-15, October 1999, p. 14.

⁴⁶ Id. at 14-15.

⁴⁷ Id. at 20-21, 31-36.

⁴⁸ Letter from David Donnelly, Deputy General Manager, Las Vegas Valley

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available and other factors tied into California cutting down on its use of the Colorado River are in place by the end of 2002. Planning for the reuse of reclaimed water has taken place over the last decade and thousands of acre-feet of water are now used in power plants and on golf courses.⁴⁹ Furthermore, there now exists the possibility of using the Arizona Water Banking program, an option that did not exist at the time of the filing of the applications.⁵⁰ Nevada is very close to, if not there, for having used its full allotment of Colorado River water.

The State Engineer finds as to these applications, the amount requested under the applications is not substantially overstated as to future planning needs for the Las Vegas Valley. The State Engineer finds that Nevada is a prior appropriation state, that is, first in time, first in right. The State Engineer further finds all water belongs to the public subject to appropriation pursuant to law.⁵¹ The applicant is moving forward with a use for the water requested for appropriation under these applications; therefore, there is a reasonable expectation to go to beneficial use within a reasonable amount of time. The State Engineer finds the LVVWD's need for future resources is not beyond the current planning horizon.

XVII.

Some of the protestants alleged that the granting of the applications would destroy the economic and growth potential of the hydrographic basin. The State Engineer finds Nevada is a prior appropriation state, that is first in time is first in right. The State Engineer finds these applications would not

Water District to Hugh Ricci, State Engineer, dated March 5, 2001. File Nos. 54073 and 54074, official records of the Office of the State Engineer.

⁴⁹ Southern Nevada Water Authority 1999 Water Resource Plan, pp. 16-17, October 1999.

⁵⁰ Id. at 36-38.

⁵¹ NRS § 533.025, 533.030.

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destroy the economic and growth potential of the hydrographic basin, but rather growth is occurring in the area, and the water use is also for the area since growth is occurring along the I-15 corridor.

XVIII.

Some of the protestants alleged that further study is needed because the potential effects are impossible to anticipate, that the public interest will not be served if the water and water-related resources in the Death Valley National Monument and the Lake Mead National Recreational Area are diminished or impaired as a result of the appropriations, and that the applications will eventually reduce or eliminate the flows from springs which are discharge areas for a regional groundwater flow system upon which the National Park Service claims senior appropriative and implied Federal reserved water rights. The State Engineer finds that gradual, staged appropriations of smaller quantities of water with sufficient monitoring and mitigation will deal with these protest issues, and there are too many unknowns to be able to address this issue without developing additional science. The approach being taken by the State Engineer in Ruling No. 5008, and Order No. 1169 is that of further study.

XIX.

Some of the protestants alleged that the proposed diversions are from the carbonate-rock province of Nevada that is typified by complex, interbasin, regional-flow systems that includes both basin-fill and carbonate-rock aquifers along with interbasin flows that are poorly defined, and the diversions will reduce the interbasin flows, modify the direction of groundwater movement in adjoining and hydraulically connected basins thereby reducing spring and stream flows. The State Engineer finds this is the reasoning behind gradual, staged development, which is to develop further knowledge that it lacking at this time as to how the complex carbonate-rock aquifer system works. The State Engineer

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further finds it is not known whether the diversions will reduce the interbasin flows, modify the direction of groundwater movement in adjoining and hydraulically connected basins reducing spring and stream flows; thus, the reasoning behind gradual development, monitoring, and mitigation, if necessary.

XX.

Some of the protestants alleged that the available scientific literature is not adequate to reasonably assure that the proposed diversions will not impact senior rights and water resources. The State Engineer finds this statement to be true, and again; thus, the reasoning behind gradual development, monitoring and mitigation, if necessary. The data will never be obtained through "literature," but only through the development of science based on real facts. The State Engineer further finds without development of the resource the knowledge will not be obtained to even explore whether development of the resource is feasible or not.

XXI.

Some of the protestants alleged that as of December 1988 the sum of Applications 54075 and 54076 and the committed diversions will exceed the perennial yield of the groundwater basin; therefore, there is no water available for appropriation. The State Engineer finds the water requested for appropriation under these applications is from the carbonate-rock aquifer and at this time it is unknown what contribution if any the carbonate-rock aquifer has to the estimated perennial yield of the California Wash groundwater basin.

XXII.

Some of the protestants alleged that it is unclear whether the amount contemplated in the applications is necessary and reasonably required for the proposed purposes. The State Engineer finds since he is taking these applications basin by basin and the amount permitted under one application is being reduced, with the

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other application being held in abeyance, it is a reasonable amount for the municipal use envisioned.

XXIII.

Some of the protestants alleged that the granting of the applications will lower the water table, sanction water mining, degrade the water quality, cause negative hydraulic gradient influences, threaten springs and seeps and phreatophytes, which provide water and habitat critical to the survival of wildlife, including endangered species and grazing livestock. They further alleged that the applications would create air contamination and pollution in violation of State and Federal statutes.

The State Engineer finds these protest claims directly relate to the discussion above as to gradual, staged development with sufficient monitoring to explore the capacity of the system, and air quality issues are addressed by the Clark County Health Department. Furthermore, the State Engineer finds that as a municipality with access to resources such as the Colorado River or the Muddy River, the LVVWD has sufficient resources to plan for any necessary mitigation.

XXIV.

Some protestants alleged that the applications will cause water rates to go up thereby causing demand to go down thereby rendering the water unnecessary. The State Engineer finds this protest claim to be completely hypothetical and not within his scope of review.

XXV.

One protestant alleged that until the claims under the Treaty of Ruby Valley (1863) are adjudicated the applications are premature. The State Engineer finds issues as to the Treaty of Ruby Valley are not within his jurisdiction and all water right permits are issued subject to existing rights.

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XXVI.

The State Engineer finds that if any significant impacts to existing water rights are detected the LVVWD or any assignee will be required to mitigate those impacts.

CONCLUSIONS OF LAW

I.

The State Engineer has jurisdiction over the parties and the subject matter of this action and determination.⁵²

II.

The State Engineer is prohibited by law from granting a permit under an application to appropriate the public waters where:⁵³

- A. there is no unappropriated water in the proposed source;
- B. the proposed use or change conflicts with existing rights;
- C. the proposed use or change conflicts with protectible interests in existing domestic wells as set forth in NRS § 533.024; or
- D. the proposed use or change threatens to prove detrimental to the public interest.

III.

The State Engineer concludes that the expert scientific evidence found in the reports prepared over the last decade leads him to believe there is possibly some unappropriated water in the carbonate-rock aquifer system, but that further knowledge is necessary before any amount can be quantified. The State Engineer concludes that only by gradual, staged development can the additional science be obtained, which will allow a better understanding of the carbonate-rock aquifer(s).

IV.

The State Engineer concludes that little is known as to what

⁵² NRS chapters 533 and 534.

⁵³ NRS § 533.370(3).

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yield exists from the carbonate-rock aquifer, if any. The State Engineer concludes it is impossible to say if there will be any impacts on the alluvial aquifers of the area groundwater basins or existing water rights within those groundwater basins. The State Engineer concludes that by providing safeguards, such as monitoring and mitigation, there are some assurances that any impacts can be quantified and, if necessary, mitigated.

V.

The State Engineer concludes that Nevada Water Law does not require comprehensive planning before the granting of a water right application.

VI.

The State Engineer concludes the evidence does not indicate that appropriation of water from the carbonate-rock aquifers will automatically conflict with existing water rights. The complexity and unknowns of the system make such a determination extremely difficult. Only by allowing some development to proceed will the additional science be obtained to provide further knowledge as to how the carbonate-rock aquifer and alluvial aquifer systems are connected, if they are. The State Engineer concludes that the available scientific literature is not adequate to reasonably assure that the proposed diversions will not impact senior rights and water resources; thus, the requirements of monitoring and mitigation, if necessary. The State Engineer concludes that the evidence to date indicates that generalizations cannot be made applicable to specific basins because, they may not be applicable to any particular basin. Individual basins may react completely differently to the pumping of the carbonate-rock aquifer.

VII.

The State Engineer concludes that the protest issue that the applications would encourage willful waste and inefficient use of

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water in the Las Vegas Valley is not a protest issue warranting consideration, and the LVVWD has been proactive in conservation planning.

VIII.

The State Engineer concludes if the applicant needs to obtain the approval of the United States Department of Interior, Bureau of Land Management for any necessary rights-of-way, that is any issue for the applicant to address with the Bureau of Land Management. The granting of a water right permit does not waive the requirements of other State or Federal laws.

IX.

The State Engineer concludes the applications contain sufficient information for the State Engineer to safeguard the public interest. The State Engineer concludes that it does not threaten to prove detrimental to the public interest to allow smaller quantities of water to be developed from the carbonate-rock aquifer system, but the development must be staged and in conjunction with sufficient monitoring, and plans for mitigation of impacts, if necessary. The State Engineer concludes it does not threaten to prove detrimental to the public interest to allow some development of this resource to proceed. The State Engineer concludes that the LVVWD has sufficient resources to plan for any necessary mitigation, and any possible assignee must also have mitigation resources available and will be subject to all permit terms.

X.

The State Engineer concludes that Nevada Water Law does not require a publicly-reviewable assessment of the cumulative impacts of the proposed appropriation.

XI.

The State Engineer concludes he is only acting on Applications 54075 and 54076 under this ruling and since the applicant has proposed a plan for the beneficial use of the water

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in the near future, the issue of "locking-up" the resource beyond current planning horizons is moot. The State Engineer concludes the carbonate-rock aquifer system is so complex and unsure that pending applications cannot be acted on quickly due to the caution in development that must be exercised.

XII.

The State Engineer concludes that granting the applications will not destroy the economic and growth potential of the hydrographic basin because, it is development along the I-15 corridor, which includes the hydrographic basin, that has prompted the request to act on the applications.

XIII.

The State Engineer concludes that the required monitoring and mitigation protect the water-related interests of the Death Valley National Monument and the Lake Mead Recreational Area.

XIV.

The State Engineer concludes that it is unknown, without further analysis through development of the resource, if these appropriations will reduce interbasin flows or modify the direction of groundwater movement thereby reducing spring and stream flows. The State Engineer concludes it is because of these unknowns that he will require monitoring and mitigation, if necessary.

XV.

The State Engineer concludes that while the existing rights in the California Wash groundwater basin exceed the estimated perennial yield, that analysis did not contemplate the carbonate-rock aquifer resource as perhaps changing the analysis of the water available for appropriation and only by stressing the system can such a determination be made.

XVI.

The State Engineer concludes it would threaten to prove detrimental to the public interest to allow the appropriation of

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the full quantity requested under the applications at this time, since no determination can be made that there is even unappropriated water available.

XVII.

The State Engineer concludes that by granting of these water right applications he is not sanctioning water mining; and thus, the requirement for monitoring and mitigation.

XVIII.

The State Engineer concludes that the issue of air contamination or pollution is within the authority of the Clark County Health Department.

XIX.

The State Engineer concludes that the protest issue that the applications will cause water rates to go up causing demand to go down is without merit.

XX.

The State Engineer concludes that any issues as to the Treaty of Ruby Valley are not within his jurisdiction and all water right permits are issued subject to existing rights.

RULING

The protests to Application 54075 is upheld in part and overruled in part. They are being upheld in that more information is necessary before the appropriation of large quantities of water from the groundwater basin can proceed. They are being overruled in that development of a smaller quantity of water is being permitted. Application 54076 is being held in abeyance until at least the study ordered under State Engineer's Order No. 1169 has been completed. Application 54075 is hereby granted subject to:

1. Existing rights;
2. Payment of the statutory fees;
3. A monitoring program approved by the State Engineer prior to the diversion of any water permitted under these


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applications prepared in conjunction with the study ordered in State Engineer's Order No. 1169.

4. The total duty under Permit 54075 shall be limited to 2,500 acre-feet annually with a diversion rate of 5.0 cfs, no additional water will be granted under this application; and

5. If impacts to existing rights are demonstrated, the applicant or any assignee will be required to mitigate the same.

Respectfully submitted,


HUGH RICCIO, P.E.
State Engineer

HR/SJT/jm

Dated this 18th day of
April, 2002.

Exhibit 32

IN THE OFFICE OF THE STATE ENGINEER

STATE OF NEVADA

1169A

ORDER

WHEREAS, on March 8, 2002, the State Engineer issued State Engineer's Order No. 1169.

WHEREAS, Order No. 1169 was issued after an administrative hearing was held before the Nevada State Engineer regarding protested Applications 54055 through 54059 held by the Las Vegas Valley Water District, and protested Applications 63272 through 63276 and 63867 through 63876 held by Coyote Springs Investment, LLC.

WHEREAS, Order No. 1169 indicated that there was insufficient information to determine if additional water was available for appropriation under the applications and additional study was needed in order to make that determination.

WHEREAS, pursuant to Order No. 1169, the State Engineer ordered that all applications pending and any new filings for the appropriation of water from the carbonate-rock aquifer system within Coyote Spring Valley (Basin 210), Black Mountains Area (Basin 215), Garnet Valley (Basin 216), Hidden Valley (North) (Basin 217), Muddy River Springs Area a.k.a. Upper Moapa Valley (Basin 219), and Lower Moapa Valley (Basin 220) would be held in abeyance until further information was obtained by stressing the aquifer by pumping water under those water right permits already issued to appropriate water from the system.

WHEREAS, Order No. 1169 ordered that a study covering a minimum five-year period of time during which at least 50% of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years. The amount of water to be pumped was 8,050 acre-feet annually for two consecutive years.

WHEREAS, Order No. 1169 included as study participants those certain entities identified as having applications for additional water rights or as currently holding water rights in the referenced basins, specifically, the Las Vegas Valley Water District, Southern Nevada Water Authority, Coyote Springs Investment, LLC, Nevada Power Company and Moapa Valley Water District.

WHEREAS, on April 18, 2002, the State Engineer issued State Engineer's Ruling No. 5115 that addressed Applications 54075 and 54076 then held by the Las Vegas Valley Water District in California Wash (Basin 218). Pursuant to Ruling No. 5115, the State Engineer indicated that additional information was necessary before large quantities of groundwater could be appropriated from California Wash. Application 54075 was approved subject to a monitoring program to be prepared in conjunction with the study ordered under Order No. 1169 and Application 54076 was held in abeyance until the Order No. 1169 study was completed.

WHEREAS, by letter dated April 16, 2010, the State Engineer granted the Moapa Band of Paiute Indians' request to participate in the Order No. 1169 study. The Moapa Band of Paiute Indians' reservation is located within California Wash. The letter noted that the intent of Ruling No. 5115 was to include California Wash within the study area as the current evidence strongly supports a hydrologic connection between California Wash and the other hydrographic basins included in Order No. 1169.

WHEREAS, by letter dated May 26, 2010, the Moapa Band of Paiute Indians indicated their concern that the pumping test itself was likely to impact resources at the Muddy River Springs. On June 22, 2010, the State Engineer held a meeting to discuss the pumping test and the Tribe's concerns.

WHEREAS, by letter dated July 1, 2010, the State Engineer expressed his concern that it had been eight years since the pumping test was ordered and the pumping requirements of the Order No. 1169 study had not even begun. The State Engineer noted that the final reports ordered under Section 7 of Order No. 1169 and updating the groundwater model under Section 8 of the Order were only required after completion of the pumping test. However, the State Engineer indicated that decisions regarding future appropriations in the basins subject to Order No. 1169 could not be deferred indefinitely. Therefore, regardless of whether the 8,050 acre-feet minimum requirement was met or not, the study participants were ordered to comply with Sections 7 and 8 of Order No. 1169. The two-year pumping period was to commence when pumping and water export from well MX-5 commenced and the Section 7 report(s) were to be filed in the Office of the State Engineer within 180 days of completion of the first two years of pumping. The pumping test was expected to begin in August or September 2010 and actually began on November 15, 2010. The Southern Nevada Water Authority was also ordered to submit model simulation results showing the predicted effects of pumping both existing rights and current applications in Lower Meadow Valley Wash (Basin 205), Kane Springs Valley (Basin 206), Coyote Spring Valley (Basin 210), Black Mountains Area (Basin 215), Garnet Valley (Basin 216), Hidden Valley (North) (Basin 217), California Wash (Basin 218), Muddy River Springs Area a.k.a. Upper Moapa Valley (Basin 219), and Lower Moapa Valley (Basin 220). The State Engineer notified all study participants that monitoring activities were to be in place no later than August 1, 2010.

WHEREAS, the State Engineer has maintained information related to the pumping test on the Nevada Division of Water Resources website <http://water.nv.gov/mapping/order1169/> and can be viewed by any member of the public.

WHEREAS, the State Engineer believes that sufficient information has been obtained through the pumping test and related monitoring in order to make a determination on the applications pending in these basins.

NOW THEREFORE, the State Engineer orders:

1. The pumping test is declared completed as of December 31, 2012.
2. In recognition of the information that has already been provided pursuant to the pumping test, the provisions of Section 8 of Order No. 1169 that required an update of Exhibit No. 54 from the July 2001 hearing is hereby rescinded.
3. Any study participant, which includes the Las Vegas Valley Water District, Southern Nevada Water Authority, Coyote Springs Investment, LLC, Nevada Power Company, Moapa Valley Water District and Moapa Band of Paiute Indians, may file a report in the Office of the State Engineer in Carson City, Nevada, by June 28, 2013, addressing the information obtained from the study/pumping test, impacts of pumping under the pumping test and the availability of water pursuant to the pending applications.


JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada

this 21st day of December, 2012

CERTIFICATE OF SERVICE

I hereby certify that a copy of Amended Order No. 1169 was served:

By U.S. certified mail, postage prepaid, on December 21, 2012, on the following:

Coyote Springs Investment, LLC
Attn.: Carl Savely
6600 N. Wingfield Pkwy.
Sparks, NV 89436
Certified Mail
#7106 7808 0630 0051 4231

Las Vegas Valley Water District
1001 S. Valley View Blvd., MS #485
Las Vegas, NV 89153
Certified Mail
#7106 7808 0630 0051 4262

Las Vegas Valley Water District
Attn.: John Entsminger
1001 S. Valley View Blvd., MS #485
Las Vegas, NV 89153
Certified Mail
#7106 7808 0630 0051 4378

Las Vegas Valley Water District
Attn.: Dana Walsh
1001 S. Valley View Blvd., MS #485
Las Vegas, NV 89153
Certified Mail
#7106 7808 0630 0051 4385

By U.S. regular mail, postage prepaid, on December 21, 2012, on the following:

Law Office of George N. Benesch
Attn.: George Benesch
190 W. Huffaker Lane, Ste. 408
Reno, NV 89511-2092

Christopher A. Brown
2014 Crawford Street, Apt. 1
North Las Vegas, NV 89030

Chemical Lime Company of Arizona
P.O. Box 363068
North Las Vegas, Nevada 89036

City of Caliente
Attn: Mayor
P.O. Box 1006
Caliente, NV 89008-1006

Dry Lake Water, LLC
2701 N. Tenaya Way, Suite 200
Las Vegas, NV 89102

Dyer, Lawrence, Penrose,
Flaherty and Donaldson
Attn.: Frank Flaherty
2805 Mountain St.
Carson City, NV 89703

James H. Fincher
2410 Bonita Lane
Henderson, NV 89014

Ely Shoshone Tribe
#16 Shoshone Circle
Ely NV 89301

Charles F. Hilfenhaus, Jr.
4465 Denia Circle
Las Vegas, NV 89108

High Country News
Attn.: Matt Jenkins
2832 Regent Street
Berkeley, CA 94704

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INMC Mortgage Holdings, Inc.
Construction Lending Division
155 N. Lake Ave. CLCA-B 11th Floor
Pasadena, CA 91101

Las Vegas Fly Fishing Club
2728 Tidewater Ct.
Las Vegas, NV 89117

Lionel Sawyer & Collins
Attn.: Brian H. Schusterman
50 W. Liberty Street, Suite 1100
Reno, NV 89501

Moapa Band of Paiute Indians
Attn.: William Anderson, Chairman
P.O. Box 340
Moapa, NV 89025

Moapa Valley Water District
Attn.: Joe Davis
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Logandale, NV 89021

Carolyn Morrison
895 Ripple Way
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Las Vegas, NV 89110

Nevada Cogeneration Associates
Attn.: Executive Director
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Bakersfield, CA 93380

Nevada Power Company
Craig York
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Las Vegas, NV 89151

Republic Environmental Technologies, Inc.
770 East Sahara Ave.
Las Vegas, NV 89104

Debra Richardson
3601 Cambridge St. #151
Las Vegas, NV 89109

Southern Nevada Water Authority
Attn.: Bill Rinne
1001 South Valley View Blvd.,
Mail Stop #485
Las Vegas, NV 89153

Southern Nevada Water Authority
Attn.: Jeff Johnson
1001 South Valley View Blvd.,
Mail Stop #485
Las Vegas, NV 89153

Stewart Title of Nevada
Attn.: Linda Jones
3800 Howard Hughes Pkwy, Ste. 500
Las Vegas, NV 89109-0913

Taggart & Taggart, Ltd.
Attn.: Paul Taggart
108 N. Minnesota Street
Carson City, NV 89703

U.S. Bureau of Indian Affairs
Western Regional
Attn.: Barry Welch
2600 N. Central Avenue, 4th floor
Phoenix, AZ 85004

U.S. Bureau of Land Management
4701 N. Torrey Pines Drive
Las Vegas, NV 89130

U.S. Fish and Wildlife Service
Attn.: Tim Mayer
911 NE 11th Ave.
Portland, OR 97232-4181

U.S. Fish and Wildlife Service
Attn.: Michael Eberle
911 NE 11th Ave.
Portland, OR 97232-4181

Certificate of Service
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United States of America
National Park Service
Attn.: Bill Hansen
1201 Oakridge Dr., Suite 250
Fort Collins, CO 80525

U.S. National Park Service
Attn.: Gary Karst
601 Nevada Way
Boulder City, NV 89005

U.S. Department of the Interior
Office of the Solicitor
Attn.: Peter Fahmy
755 Parfet St., Suite 151
Lakewood, CO 80215

U.S. Department of the Interior
Office of the Solicitor
Attn.: Steven Palmer
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

Ziontz, Chestnut, Varnell, Berley & Slonim
Attn.: Richard Berley
2101 Fourth Ave., Suite 1230
Seattle, WA 98121



Juanita Mordhorst, AAI
Division of Water Resources
Hearings Section

Exhibit 33

**IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA**

INTERIM ORDER

#1303

DESIGNATING THE ADMINISTRATION OF ALL WATER RIGHTS WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA BASIN (215), GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) BASIN (219) AS A JOINT ADMINISTRATIVE UNIT, HOLDING IN ABEYANCE APPLICATIONS TO CHANGE EXISTING GROUNDWATER RIGHTS, AND ESTABLISHING A TEMPORARY MORATORIUM ON THE REVIEW OF FINAL SUBDIVISION MAPS

I. PURPOSE

WHEREAS, the purpose of this Interim Order is to designate a multi-basin area known to share a close hydrologic connection as a joint administrative unit, which shall be known as the Lower White River Flow System (LWRFS).

WHEREAS, an adequate and predictable supply of groundwater within the LWRFS supports the health, safety and welfare of the area, and this Interim Order aims to protect existing senior rights and the public interest in an endangered species, recognize existing beneficial use, and limit development actions that are dependent on a supply of water that may not be available in the future.

WHEREAS, during the interim period that this Order is in effect, holders of existing rights and other interested parties are encouraged to submit reports to the Nevada Division of Water Resources (NDWR) analyzing the data available regarding sustainable groundwater development in the LWRFS, the geographic extent of the LWRFS, and considerations relating to groundwater pumping within the LWRFS and its effects on the fully decreed Muddy River. This collected and analyzed data is an essential step to optimize the beneficial use of the available water supply in the LWRFS.

WHEREAS, concurrent with this interim order, holders of existing rights and other interested parties are encouraged to participate in the public process to develop a conjunctive management plan.

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I. BASIN DESIGNATIONS PURSUANT TO NRS § 534.030

WHEREAS, the Coyote Spring Valley Hydrographic Basin was designated pursuant to Nevada Revised Statute (NRS) § 534.030 by Order 905 dated August 21, 1985, which also declared municipal, power, industrial and domestic uses as preferred uses of the groundwater resource pursuant to NRS § 534.120.

WHEREAS, the Black Mountains Area Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1018 dated November 22, 1989, which also declared municipal, industrial, commercial and power generation purposes as preferred uses of the groundwater resource pursuant to NRS § 534.120, declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the Garnet Valley Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1025 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the California Wash Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1026 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the Hidden Valley Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1024 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

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WHEREAS, the Muddy River Springs Area was partially designated pursuant to NRS § 534.030 by Order 392 dated July 14, 1971, and was fully designated by Order 1023 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

II. ORDERS 1169 AND 1169A

WHEREAS, on March 8, 2002, the State Engineer issued Order 1169 holding in abeyance carbonate-rock aquifer system groundwater applications either pending or to be filed in Coyote Spring Valley (Basin 210), Black Mountains Area (Basin 215), Garnet Valley (Basin 216), Hidden Valley (Basin 217), Muddy River Springs Area (Basin 219), and Lower Moapa Valley (Basin 220) and ordering an aquifer test of the carbonate-rock aquifer system, which was not well understood, to determine whether additional appropriations could be developed from the carbonate-rock aquifer system. The Order required that at least 50%, or 8,050 acre-feet annually (afa), of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years.

WHEREAS, on April 18, 2002, in Ruling 5115, the State Engineer added the California Wash (Basin 218) to the Order 1169 aquifer test basins.

WHEREAS, prior to the Order 1169 aquifer test beginning, there were significant concerns that pumping 8,050 afa from the Coyote Spring Valley as part of the aquifer test would adversely impact the water resources at the Muddy River Springs, and consequently the Muddy River. Ultimately, the Order 1169 study participants agreed that even if the minimum 8,050 afa was not pumped, sufficient information would be obtained to inform future decisions relating to the study basins.

WHEREAS, on November 15, 2010, the Order 1169 aquifer test began, whereby the study participants began reporting to NDWR on a quarterly basis the amounts of water being pumped from wells in the carbonate and alluvial aquifer during the pendency of the aquifer test.

WHEREAS, on December 21, 2012, the State Engineer issued Order 1169A declaring the completion of the aquifer test to be December 31, 2012, after a period of 25½ months. The

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State Engineer provided the study participants the opportunity to file reports with NDWR until June 28, 2013, addressing the information gained from the aquifer test and the water available to support applications in the aquifer test basins.

WHEREAS, during the Order 1169 aquifer test, an average of 5,290 acre-feet per year was pumped from carbonate wells in Coyote Spring Valley, and a cumulative total of approximately 14,535 acre-feet per year of water was pumped throughout the LWRFS. Of this total, approximately 3,840 acre-feet per year was pumped from the Muddy River Springs Area alluvial aquifer.¹

WHEREAS, during the aquifer test, pumpage was measured and reported from 30 other wells in the Muddy River Springs Area, Garnet Valley, California Wash, Black Mountains Area, and Lower Meadow Valley Wash. Stream diversions from the Muddy River were reported, and measurements of the natural discharge of the Muddy River and several of the Muddy River's headwater springs were collected daily. Water-level data were collected from a total of 79 monitoring and pumping wells within the LWRFS. All of the data collected during the aquifer test was made available to each of the study participants and the public.

WHEREAS, during the Order 1169 aquifer test, the resulting water-level decline encompassed 1,100 square miles and extended from northern Coyote Spring Valley through the Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern part of the Black Mountains Area.^{2,3} The water-level decline was estimated to be 1 to 1.6 feet in this area with minor drawdowns of 0.5 feet or less in the northern part of Coyote Spring Valley north of the Kane Springs Wash fault zone.

WHEREAS, results of the two-year test demonstrated that pumping 5,290 acre-feet annually from the carbonate aquifer in Coyote Spring Valley, in addition to the other carbonate pumping in Garnet Valley, Muddy River Springs Area, California Wash and the northwest part

¹ See, e.g., Ruling 6254, p. 17; Appendix B.

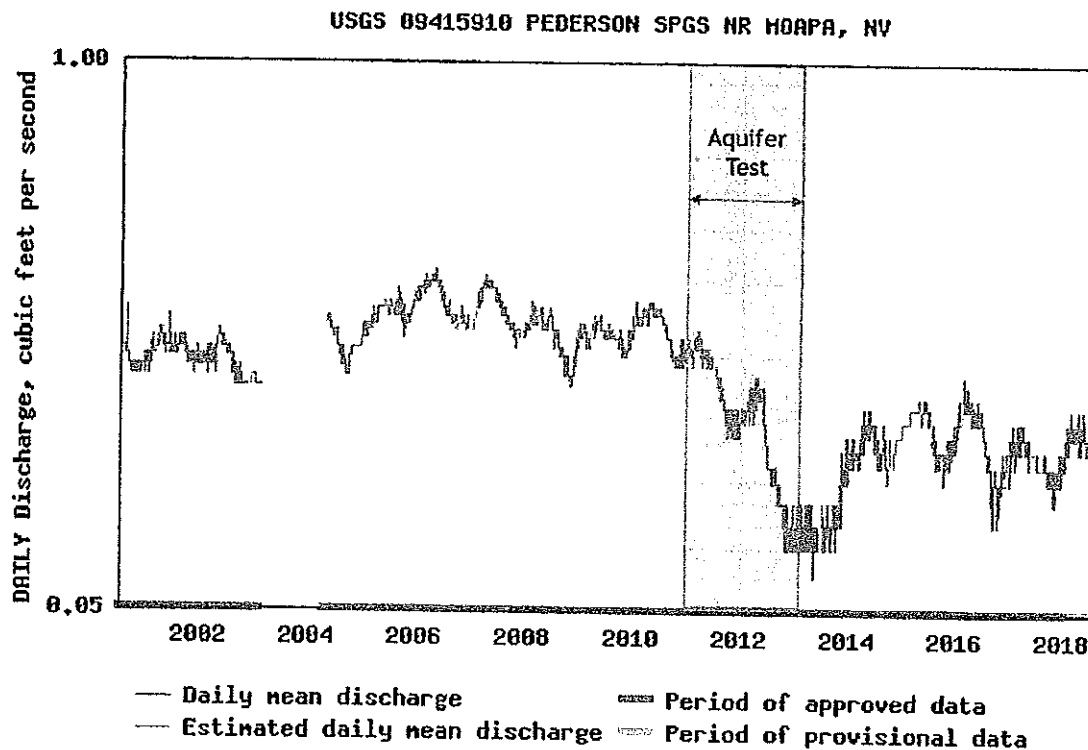
² See, e.g., Ruling 6254. See also U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, June 28, 2013, official records in the Office of the State Engineer.

³ There was no groundwater pumping in Hidden Valley but effects were still observed in the Hidden Valley monitor well.

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of the Black Mountains Area, caused sharp declines in groundwater levels and flows in the Pederson and Pederson East springs. These two springs are considered to be sentinel springs for the overall condition of the Muddy River because they are at a higher altitude than other Muddy River source springs, and therefore are proportionally more affected by a decline in groundwater level in the carbonate aquifer.⁴ The Pederson spring flow decreased from 0.22 cubic feet per second (cfs) to 0.08 cfs and the Pederson East spring flow decreased from 0.12 cfs to 0.08 cfs. The following hydrograph at Pederson spring illustrates the decline in discharge during the aquifer test and also demonstrates that in the five years since the end of the aquifer test, spring flow has not recovered to pre-test flow rates.



⁴ See the 2006 Memorandum of Agreement among the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investments, Moapa Band of Paiutes, and the Moapa Valley Water District.

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Additional headwater springs at lower altitude, the Baldwin and Jones springs, declined approximately 4% during the test.⁵ All of the headwater springs contribute to the decreed and fully appropriated Muddy River and are the predominant source of water that supplies the habitat of the endangered Moapa dace, a fish federally listed as an endangered species since 1967.

WHEREAS, based upon the analysis of the carbonate aquifer test, it was asserted that pumping at the Order 1169 rate at well MX-5 in Coyote Spring Valley could result in both of the high-altitude Pederson and Pederson East springs going dry in 3 years or less.⁶

WHEREAS, based upon the findings of the aquifer test, the carbonate aquifer underlying Coyote Spring Valley, Garnet Valley, Hidden Valley, Muddy River Springs Area, California Wash and the northwest part of the Black Mountains Area⁷ (the LWRFS as depicted in Appendix A) was acknowledged to have a unique hydrologic connection and share the same supply of water.⁸

III. RULINGS 6254, 6255, 6256, 6257, 6258, 6259, 6260, AND 6261

WHEREAS, on January 29, 2014, the State Engineer issued Ruling 6254 on pending applications of the Las Vegas Valley Water District (LVVWD) and Coyote Springs Investment, LLC (CSI) in the Coyote Spring Valley; Ruling 6255 on pending applications of Dry Lake Water, LLC (Dry Lake), and CSI in Coyote Spring Valley; Ruling 6256 on pending applications of Bonneville Nevada Corporation, Nevada Power Company (Nevada Power), Dry Lake, and the Southern Nevada Water Authority (SNWA) in the Garnet Valley; Ruling 6257 on pending applications of Nevada Power, Dry Lake, and SNWA in the Hidden Valley; Ruling 6258 on

⁵ U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, pp. 43-46, 50-51, June 28, 2013, official records in the Office of the State Engineer. See also, <http://waterdata.usgs.gov/nv/nwis/>.

⁶ See, e.g., Ruling 6254. See also U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, p. 85, June 28, 2013, official records in the Office of the State Engineer.

⁷ That portion of the Black Mountains Area lying within the Lower White River Flow System is defined as those portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; Section 13 and those portions of Sections 1, 11, 12, and 14, T.19S., R.63E., M.D.B.&M.; Sections 5, 7, 8, 16, 17, and 18 and those portions of Sections 4, 6, 9, 10, and 15, T.19S., R.64E., M.D.B.&M.

⁸ See, e.g., State Engineer Ruling 6254, p. 24, official records in the Office of the State Engineer.

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pending applications by LVVWD, Nevada Power, Dry Lake, and the Moapa Band of Paiute Indians in the California Wash; Ruling 6259 on pending applications by the Moapa Valley Water District in the Muddy River Springs Area; and Ruling 6260 on pending applications by Nevada Cogeneration Associates #1, Nevada Cogeneration Associates #2, and Dry Lake, in the Black Mountains Area, upholding in part the protests to said applications and denying the applications on the grounds that there was no unappropriated groundwater at the source of supply, the proposed use would conflict with existing rights, and the proposed use of the water would threaten to prove detrimental to the public interest because it would threaten the water resources upon which the endangered Moapa dace are dependent.

IV. LOWER WHITE RIVER FLOW SYSTEM

WHEREAS, the total long-term average water supply to the LWRFS, from subsurface groundwater inflow and local precipitation recharge, is not more than 50,000 acre-feet annually.⁹

WHEREAS, the Muddy River, a fully appropriated surface water source, has its headwaters in the Muddy River Springs Area and has the most senior rights in the LWRFS. Spring discharge in the Muddy River Springs Area is produced from the regional carbonate aquifer. Prior to groundwater development, the Muddy River flows at the Moapa gage were approximately 34,000 acre-feet annually.¹⁰

WHEREAS, the alluvial aquifer surrounding the Muddy River ultimately derives virtually all of its water supply from the carbonates, either through spring discharge that infiltrates into the alluvium or through subsurface hydraulic connectivity between the carbonate rocks and the alluvium.¹¹

WHEREAS, the State Engineer has determined that pumping of groundwater within the LWRFS has a direct interrelationship with the flow of the decreed and fully appropriated Muddy River, which has the most-senior rights.¹²

⁹ *Id.*

¹⁰ United States Geological Survey Surface-Water Annual Statistics for the Nation, USGS 09416000 MUDDY RV NR MOAPA, NV, accessed at https://waterdata.usgs.gov/nwis/annual/?search_site_no=09416000&agency_cd=USGS&referred_module=sw&format=sites_selection_links.

¹¹ *See, e.g.*, State Engineer Ruling 6254, p. 24, official records in the Office of the State Engineer.

¹² *Id.*

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WHEREAS, since the conclusion of the Order 1169 aquifer test, the State Engineer has jointly managed the groundwater rights within LWRFS.

WHEREAS, the State Engineer, under the joint management of the LWRFS, has not distinguished pumping from wells in the Muddy River Springs Area alluvium from pumping carbonate wells within the LWRFS.

WHEREAS, within the LWRFS, there exist more than 38,000 acre-feet of groundwater appropriations. Groundwater pumping from 2007 forward is included in Appendix B and is significantly less than the total appropriations.

WHEREAS, groundwater levels within the LWRFS have been relatively flat in the five years since the end of the Order 1169 aquifer test, but groundwater levels have not recovered to pre-test levels.¹³

IV. PUMPAGE INVENTORIES

WHEREAS, annual groundwater pumpage inventories in the Coyote Spring Valley have been published by the State Engineer since 2005. In the years 2005 through 2017 pumping has ranged from 665 acre-feet to 5,606 acre-feet, averaging 2,605 acre-feet. The average pumping in Coyote Spring Valley, excluding the years 2011 and 2012 when the aquifer test was being conducted, is 2,068 acre-feet.¹⁴

WHEREAS, annual groundwater pumpage inventories in the Black Mountains Area have been published by the State Engineer since 2001. In the years 2001 through 2017 pumping in the northwest portion of the basin has ranged from 1,137 acre-feet to 1,591 acre-feet, with an average of 1,476 acre-feet.¹⁵

¹³ See, e.g., *USGS water level data for Site 364650114432001 219 S13 E65 28BDBA1 USGS CSV-2*. waterdata.usgs.gov/nwis.

¹⁴ See, e.g., *Nevada Division of Water Resources, Coyote Spring Valley Hydrographic Basin 13-210 Groundwater Pumpage Inventory*, 2017.

¹⁵ See, e.g., *Nevada Division of Water Resources, Black Mountains Area Hydrographic Basin 13-215 Groundwater Pumpage Inventory*, 2017.

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WHEREAS, annual groundwater pumpage inventories in the Garnet Valley have been published by the State Engineer since 2001. In the years 2001 through 2017 pumping has ranged from 797 acre-feet to 2,181 acre-feet, averaging 1,358 acre-feet.¹⁶

WHEREAS, the State Engineer does not conduct annual groundwater pumpage inventories in the Hidden Valley basin because there is no groundwater pumping in the basin.

WHEREAS, annual groundwater pumpage inventories in the California Wash have been published by the State Engineer since 2016. In the years 2016 and 2017 pumping has ranged from 88 acre-feet to 252 acre-feet, averaging 170 acre-feet.¹⁷ Groundwater pumpage data have been reported by water right holders since 2009.

WHEREAS, annual groundwater pumpage inventories in the Muddy River Springs Area have been published by the State Engineer since 2016. In the years 2016 and 2017 pumping has ranged from 3,553 acre-feet to 4,048 acre-feet, with an average of 3,801 acre-feet.¹⁸ Groundwater pumpage data have been reported by water right holders since 1976.

WHEREAS, total groundwater pumpage in Coyote Spring Valley, Muddy River Springs Area (MRSA), California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area in calendar years 2007 through 2017, ranged from 9,090 acre-feet to 14,766 acre-feet. Pumpage in years 2011-2012 during the aquifer test averaged 14,535 afa. Pumpage in years 2015 through 2017, when alluvial pumping in the MRSA was greatly reduced because of the Reid Gardner Generating Station closure, ranged from 9,090 afa to 9,637 afa.

V. AUTHORITY AND NECESSITY

WHEREAS, NRS § 533.024(1)(c) directs the State Engineer “to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada.”

¹⁶ See, e.g., *Nevada Division of Water Resources, Garnet Valley Hydrographic Basin 13-216 Groundwater Pumpage Inventory*, 2017.

¹⁷ See, e.g., *Nevada Division of Water Resources, California Wash Hydrographic Basin 13-218 Groundwater Pumpage Inventory*, 2017.

¹⁸ See, e.g., *Nevada Division of Water Resources, Muddy River Springs Area (AKA Upper Moapa Valley) Hydrographic Basin 13-219 Groundwater Pumpage Inventory*, 2017.

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WHEREAS, NRS § 533.024(1)(e) was added in 2017 to declare the policy of the State to “manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water.”

WHEREAS, given that the State Engineer must use the best available science and manage conjunctively the water resources in the LWRFS, consideration of any development of long-term, permanent, uses that could ultimately be curtailed due to water availability will be examined with great caution.

WHEREAS, as demonstrated by the results of the aquifer test, Coyote Spring Valley, Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern part of the Black Mountains Area have a direct hydraulic connection, and as a result must be administered as a joint administrative unit, including the administration of all water rights based upon the date of priority of such rights in relation to the priority of rights in the other basins.¹⁹

WHEREAS, the pre-development discharge of 34,000 acre-feet of the Muddy River system, which is fully appropriated, plus the more than 38,000 acre-feet of groundwater appropriations within the LWRFS greatly exceed the total water budget within the flow system.

WHEREAS, the results from the aquifer test, the data from groundwater level recovery and spring flow, and climate data indicate to the State Engineer that the quantity of water that may be pumped within the LWRFS without conflicting with senior rights on the Muddy River or adversely affecting the habitat of the Moapa dace is less than the quantity pumped during the aquifer test.

WHEREAS, the current amount of pumping corresponds to a period of time in which spring flows have remained relatively stable and have not demonstrated a continuing decline.

¹⁹ See, e.g., Southern Nevada Water Authority, *Nevada State Engineer Order 1169 and 1169A Study Report*, June 2013; Tom Meyers, Ph.D., *Technical Memorandum Comments on Carbonate Order 1169 Pump Test Data and Groundwater Flow System in Coyote Springs and Muddy River Springs Valley, Nevada*, June 25, 2013; U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, June 28, 2013; Johnson and Mifflin, *Summary of Order 1169 Testing Impacts, per Order 1169A*, June 28, 2013; Tetra Tech, *Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the End of the Order 1169 Test, and Prediction of Recovery from the Test*, June 10, 2013, official records in the Office of the State Engineer.

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WHEREAS, the precise extent of the development of existing appropriations of groundwater within the LWRFS that may occur without conflicting with the senior rights of the fully decreed Muddy River has not been determined.

WHEREAS, recognizing that there exists a need for further analysis of the historic and ongoing groundwater pumping data, the relationship of groundwater pumping within the LWRFS to spring discharge and flow of the fully decreed Muddy River, the extent of impact of climate conditions on groundwater levels and spring discharge, and the ultimate determination of the sustainable yield of the LWRFS, the State Engineer finds that input by means of reports by the stakeholders in the interpretation of the data from the aquifer test and from the years since the conclusion of the aquifer test is important to fully inform the State Engineer prior to setting a limit on the quantity of groundwater that may be developed in the LWRFS or to developing a long-term Conjunctive Management Plan for the LWRFS and Muddy River.

WHEREAS, the State Engineer finds that it is necessary to carefully monitor the effects of groundwater development within the LWRFS under current conditions, toward the goal of collaboratively (with stakeholders) evaluating the amount of groundwater that may ultimately be developed within the LWRFS without conflicting with senior decreed rights on the Muddy River or adversely affecting the public interest in maintaining the habitat of the endangered Moapa dace. The evaluation process will include public meetings, meetings of a stakeholder representative working group, and coordination with the Hydrologic Review Team (HRT) developed under the 2006 Memorandum of Agreement among the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investments, Moapa Band of Paiutes, and the Moapa Valley Water District. The process will provide the opportunity for the stakeholders to engage in the development of a conjunctive management plan that will be informed by the determination of the total quantity of groundwater that may be developed within the LWRFS and that will facilitate the continued use of groundwater by junior priority groundwater rights holders whom have perfected their water rights while protecting the senior decreed rights on the Muddy River.

WHEREAS, recognizing that an amount less than the full quantity of the appropriated groundwater rights within the LWRFS may be developed in a manner that will provide for a reasonably certain supply of water for future permanent uses without jeopardizing the economies of the communities reliant on the water supply within the LWRFS, the health and safety of those

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whom are either presently reliant the water, existing public interests, or those who may in the future become reliant on a reliable and sustainable source of supply, the State Engineer, with the following exception, finds that it is necessary to issue a temporary moratorium on the review and decision by the Division of Water Resources regarding any final subdivision map or other construction or development submission requiring a finding that adequate water is available to support the proposed development. During the pendency of this Interim Order, the State Engineer may review and grant approval of a subdivision or other submission if a showing of an adequate and sustainable supply of water to meet the anticipated life of the subdivision, other construction or development can be made to the State Engineer's satisfaction.

WHEREAS, through continued monitoring of the LWRFS during the effective period of this Interim Order, the State Engineer seeks to maintain recent groundwater pumping amounts, while providing time for the submission of additional scientific data and analysis regarding the total quantity of water that may be sustainably withdrawn from the LWRFS over the long-term without conflicting with senior Muddy River decreed rights or jeopardizing the communities, water users, or public interests identified above.

WHEREAS, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.²⁰

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.²¹

WHEREAS, the State Engineer finds that additional data relating to the impacts of groundwater pumping from the LWRFS coupled with the public process will allow his office to make a determination as to the appropriate long-term management of groundwater pumping that may occur in the LWRFS by existing holders of water rights without conflicting with existing senior decreed rights or adversely affecting the endangered Moapa dace.

²⁰ NRS § 532.120.

²¹ *Id.*

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VI. ORDER

NOW THEREFORE, the State Engineer orders:

1. The Lower White River Flow System consisting of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the portion of the Black Mountains Area as described in this Order, is herewith designated as a joint administrative unit for purposes of administration of water rights. All water rights within the Lower White River Flow System will be administered based upon their respective date of priorities in relation to other rights within the regional groundwater unit.
2. Any stakeholder with interests that may be affected by water right development within the Lower White River Flow System may file a report in the Office of the State Engineer in Carson City, Nevada, no later than the close of business on Monday, June 3, 2019.²² Reports filed with the Office of the State Engineer should address the following matters:
 - a. The geographic boundary of the hydrologically connected groundwater and surface water systems comprising the Lower White River Flow System;
 - b. The information obtained from the Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test;
 - c. The long-term annual quantity of groundwater that may be pumped from the Lower White River Flow System, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River flow;

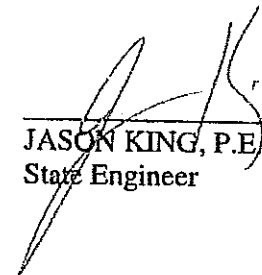
²² For any stakeholder affected by the shut-down of the United States government beginning in December 2018, upon a request and showing of good cause to the satisfaction of the State Engineer, an extension of time may be granted to those affected parties.

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- d. The effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and,
 - e. Any other matter believed to be relevant to the State Engineer's analysis.
- 3. Any stakeholder with interests that may be affected by water right development within the Lower White River Flow System may file with the Office of the State Engineer no later than the close of business on Thursday July 18, 2019, a rebuttal to the Reports filed on June 3, 2019.
- 4. The State Engineer will schedule an administrative hearing within the month of September 2019 to take comment on the submitted reports.
- 5. During the pendency of this Interim Order:
 - a. Permanent applications to change existing groundwater rights shall be held in abeyance pending the submission of the reports as required by Paragraph 2 of this Order and as authorized by NRS §§ 532.165(1), 533.368 and 533.370(4)(d). Temporary applications to change existing groundwater rights will be processed pursuant to NRS § 533.345.
 - b. A temporary moratorium is issued regarding any final subdivision or other submission concerning development and construction submitted to the State Engineer for review, and such submissions shall be held in abeyance pending the conclusion of the public process to determine the total quantity of groundwater that may be developed within the Lower White River Flow System. The State Engineer may review and grant approval of a subdivision or other submission if a showing of an adequate and sustainable supply of water to meet the anticipated life of the subdivision, other construction or development can be made to the State Engineer's satisfaction.

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- c. Holders of water rights who maintain their water rights in good standing by filing all required applications for extension of time in conformity with the requirements of NRS §§ 533.390, 533.395 and 533.410 may cite this order in support of their applications for extension of time.
- d. Holders of water rights who file all required applications for extension of time in conformity with the requirements of NRS § 534.090 may cite this order in support of their applications for extension of time to prevent the working of a forfeiture.



JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this

11TH day of JANUARY, 2019.

**IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA**

#1309

ORDER

**DELINEATING THE LOWER WHITE RIVER FLOW SYSTEM HYDROGRAPHIC
BASIN WITH THE KANE SPRINGS VALLEY BASIN (206), COYOTE SPRING
VALLEY BASIN (210), A PORTION OF BLACK MOUNTAINS AREA BASIN (215),
GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA
WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA
VALLEY) BASIN (219) ESTABLISHED AS SUB-BASINS, ESTABLISHING A
MAXIMUM ALLOWABLE PUMPING IN THE LOWER WHITE RIVER FLOW
SYSTEM WITHIN CLARK AND LINCOLN COUNTIES, NEVADA,
AND RESCINDING INTERIM ORDER 1303**

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**I. BACKGROUND OF THE ADMINISTRATION OF THE LOWER WHITE
RIVER FLOW SYSTEM BASINS**

WHEREAS, the State Engineer has actively managed and regulated the Coyote Spring Valley Hydrographic Basin (Coyote Spring Valley), Basin 210, since August 21, 1985; the Black Mountains Area Hydrographic Basin (Black Mountains Area), Basin 215, since November 22, 1989; the Garnet Valley Hydrographic Basin (Garnet Valley), Basin 216, since April 24, 1990; the Hidden Valley Hydrographic Basin (Hidden Valley), Basin 217, since April 24, 1990; the California Wash Hydrographic Basin (California Wash), Basin 218, since April 24, 1990; and the

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Muddy River Springs Area Hydrographic Basin (Muddy River Springs Area), Basin 219, since July 14, 1971.¹

WHEREAS, in 1984, the United States Department of Interior, Geological Survey (USGS), Water Services Division, proposed a ten-year investigation into carbonate-rock aquifers that underlay approximately 50,000 square miles of eastern and southern Nevada.² In 1985, a program for the study and testing of the carbonate-rock aquifer system of eastern and southern Nevada was authorized by the Nevada Legislature. In 1989, a report was published by the USGS summarizing the first phase of the study.³ Included in the summary was a determination that:

Large-scale development (sustained withdrawals) of water from the carbonate-rock aquifers would result in water-level declines and cause the depletion of large quantities of stored water. Ultimately, these declines would cause reductions in the flow of warm-water springs that discharge from the regional aquifers. Storage in other nearby aquifers also might be depleted, and water levels in those other aquifers could decline. In contrast, isolated smaller ground-water developments, or developments that withdraw ground water for only a short time, may result in water-level declines and springflow reductions of manageable or acceptable magnitude.

Confidence in predictions of the effects of development, however, is low; and it will remain low until observations of the initial hydrologic results of development are analyzed. A strategy of staging developments gradually and adequately monitoring the resulting hydrologic conditions would provide information that eventually could be used to improve confidence in the predictions.⁴

¹ See NSE Ex. 9, *Order 905*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See NSE Ex. 8, *Order 1018*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See NSE Ex. 5, *Order 1025*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See NSE Ex. 6, *Order 1024*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See NSE Ex. 4, *Order 1026*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See NSE Ex. 7, *Order 1023*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 11, *Order 392*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

² Memorandum dated August 3, 1984, from Terry Katzer, Nevada Office Chief, Water Resources Division, United States Department of Interior Geologic Survey, Carson City, Nevada to Members of the Carbonate Terrane Study.

³ Michael D. Dettinger, *Distribution of Carbonate-Rock Aquifers in Southern Nevada and the Potential for their Development, Summary of Findings, 1985-1988*, Summary Report No. 1, U.S. Geological Survey, Department of Interior and Desert Research Institute, University of Nevada System, 1989, p. Forward. See also NSE Ex. 3, *Order 1169*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁴ *Id.*, p. 2.

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WHEREAS, beginning in 1989 and through the early 2000s, numerous groundwater applications were filed in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, California Wash, and Muddy River Springs Area Hydrographic Basins seeking to appropriate more than 300,000 acre-feet annually (afa) of groundwater from the carbonate-rock aquifer underlying these basins.⁵ The State Engineer held a hearing on July 12-20, 23-24, and August 31, 2001, for pending Applications 54055–54059, filed by Las Vegas Valley Water District (LVVWD) to appropriate 27,510 afa of water in Coyote Spring Valley.⁶ The State Engineer conducted a hearing on Coyote Springs Investments LLC (CSI) Applications 63272–63276 on August 20-24, 27-28, 2001.⁷

WHEREAS, following the conclusions of these hearings, the State Engineer issued Order 1169 on March 8, 2002, requiring all pending applications in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley Hydrographic Basin (Basin 220), be held in abeyance pending an aquifer test of the carbonate-rock aquifer system to better determine whether the pending applications and future appropriations could be developed from the carbonate-rock aquifer.⁸

WHEREAS, in Order 1169, the State Engineer found that he did not believe that it was prudent to issue additional water rights to be pumped from the carbonate-rock aquifer until a significant portion of the then existing water rights were pumped for a substantial period of time to determine whether the pumping of those water rights would have a detrimental impact on existing water rights or the environment.⁹

WHEREAS, Order 1169 required that at least 50%, or 8,050 afa, of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years.¹⁰ On April 18, 2002, the State Engineer added the California Wash to the Order 1169 aquifer test basins.¹¹

⁵ See NSE Exs. 14–20, *Ruling 6254–Ruling 6260*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁶ See NSE Ex. 14.

⁷ *Id.*

⁸ See NSE Ex. 3.

⁹ *Id.*

¹⁰ *Id.*

¹¹ See State Engineer's Ruling 5115, dated April 18, 2002, official records of the Division of Water Resources.

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WHEREAS, subsequent to the issuance of Order 1169, the United States Fish and Wildlife Service (USFWS) expressed concern that current groundwater pumping coupled with additional groundwater withdrawals in Coyote Spring Valley and California Wash may cause reduction of spring flow to the Warm Springs area, tributary thermal springs in the upper Muddy River, which serves as critical habitat to the Moapa dace (*Moapa corciacea*), an endemic fish species federally listed as endangered in 1967.¹² Due to these concerns, on April 20, 2006, the Southern Nevada Water Authority (SNWA), USFWS, CSI, the Moapa Band of Paiute Indians (MBOP) and the Moapa Valley Water District (MVWD) entered into a Memorandum of Agreement (MOA).¹³

WHEREAS, the MOA stated that all the parties shared “a common interest in the conservation and recovery of the Moapa dace and its habitat.” The MOA established certain protections to the Moapa dace, including protocols relating to pumping from the regional carbonate-rock aquifer that may adversely impact spring flow to the dace habitat in the Warm Springs area. Specifically, the MOA identified conservation measures, which included protections for minimum instream flows in the Warm Springs area with trigger levels set at 3.2 cubic feet per second (cfs) at the Warm Springs West gage requiring initial action by the MOA parties, and the most stringent action required at a flow rate of 2.7 cfs.¹⁴

WHEREAS, the MBOP raised concerns that pumping 8,050 afa from the Coyote Spring Valley as part of the aquifer test would adversely impact the water resources at the Warm Springs area, and consequently the Moapa dace, and that the impacts would persist such that protective measures established in the MOA would be inadequate to protect the dace.¹⁵ As a result, the Order 1169 study participants, which included the LVVWD, SNWA, CSI, Nevada Power Company,¹⁶ MVWD, Dry Lake Water Company, LLC, Republic Environmental Technologies, Inc. (Republic),

¹² USFWS, *Fish and Aquatic Conservation - Moapa dace*, <https://bit.ly/moapadace> (last accessed June 3, 2020). See also SNWA Ex. 8, p. 1-1.

¹³ See NSE Ex. 236, *2006 Memorandum of Agreement between the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investment LLC, Moapa Band of Paiute Indians and Moapa Valley Water District*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹⁴ *Id.*

¹⁵ See May 26, 2010, letter from Darren Daboda, Chairperson, Moapa Band of Paiutes, to Jason King, Nevada State Engineer, official records of the Division of Water Resources.

¹⁶ Nevada Power Company, following the merger with Sierra Pacific Power Company and Sierra Pacific Resources subsequently began doing business as NV Energy. See, e.g., NV Energy, *Company History*, <https://bit.ly/NVEhistory> (last accessed April 20, 2020).

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Chemical Lime Company, Nevada Cogeneration Associates, and the MBOP, or their successors, agreed that even if the minimum 8,050 afa was not pumped, sufficient information would be obtained to inform future decisions relating to the study basins.¹⁷

WHEREAS, on November 15, 2010, the Order 1169 aquifer test began, whereby the study participants began reporting to the Nevada Division of Water Resources (Division) on a quarterly basis the amounts of water pumped from wells in the carbonate-rock and alluvial aquifers during the pendency of the aquifer test.

WHEREAS, on December 21, 2012, the State Engineer issued Order 1169A declaring the completion of the Order 1169 aquifer test to be December 31, 2012, after a period of 25½ months. The State Engineer provided the study participants the opportunity to file reports with the Division until June 28, 2013, to present information gained from the aquifer test in order to estimate water to support applications in the Order 1169 study basins.¹⁸

WHEREAS, during the Order 1169 aquifer test, an average of 5,290 acre-feet per year (afy) was pumped from carbonate-rock aquifer wells in Coyote Spring Valley, and a cumulative reported total of 14,535 afy of water was pumped throughout the Order 1169 study basins. Of this total, approximately 3,840 afy was pumped from the Muddy River Springs Area alluvial aquifer with the balance pumped from the carbonate-rock aquifer.¹⁹

WHEREAS, during the aquifer test, pumpage was measured and reported from 30 other wells in the Coyote Spring Valley, Muddy River Springs Area, Garnet Valley, California Wash, Black Mountains Area, and Lower Meadow Valley Wash Hydrographic Basin (Lower Meadow Valley Wash). Stream diversions from the Muddy River were reported, and measurements of the natural discharge of the Muddy River and from the Warm Springs area springs were collected daily. Water-level data were collected from a total of 79 monitoring and pumping wells within the Order 1169 study basins. All of the data collected during the aquifer test were made available to each of the study participants and the public.²⁰

¹⁷ See July 1, 2010, letter from Jason King, Nevada State Engineer, to Order 1169 Study Participants, official records of the Division of Water Resources.

¹⁸ See NSE Ex. 2, *Order 1169A*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹⁹ See, e.g., NSE Ex. 1, Appendix B.

²⁰ See Division, *Water Use and Availability – Order 1169*, <https://bit.ly/Order1169>

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WHEREAS, during the Order 1169 aquifer test, the resulting water-level decline encompassed 1,100 square miles and extended from southern Kane Springs Valley, northern Coyote Spring Valley through the Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern portion of the Black Mountains Area.²¹ The water-level decline was estimated to be 1 to 1.6 feet throughout this area with minor drawdowns of 0.5 foot or less in the northern portion of Coyote Spring Valley north of the Kane Springs Wash fault zone.²²

WHEREAS, results of the two-year aquifer test demonstrated that pumping 5,290 afa from the carbonate-rock aquifer in Coyote Spring Valley, in addition to the other carbonate-rock aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash and the northwest portion of the Black Mountains Area, caused sharp declines in groundwater levels and flows in the Pederson and Pederson East springs, two springs considered to be sentinel springs for the overall condition of the Muddy River due to being higher in altitude than other Muddy River source springs, and therefore are proportionally more affected by a decline in groundwater level in the carbonate-rock aquifer.²³ The Pederson spring flow decreased from 0.22 cfs to 0.08 cfs and the Pederson East spring flow decreased from 0.12 cfs to 0.08 cfs. Additional headwater springs at lower altitude, the Baldwin and Jones springs, declined approximately 4% in spring flow during the test.²⁴ All of the headwater springs contribute to the decreed and fully-appropriated Muddy River and are the predominant source of water that supplies the habitat of the endangered Moapa dace.

WHEREAS, Order 1169A provided the study participants an opportunity to submit reports addressing three specific questions presented by the State Engineer: (1) what information was obtained from the study/pumping test; (2) what were the impacts of pumping under the pumping test; and, (3) what is the availability of additional water resources to support the pending applications. SNWA, USFWS, National Park Service (NPS) and Bureau of Land Management

²¹ USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 21, 67. *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256, *Federal Bureaus Order 1169A Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. There was no groundwater pumping in Hidden Valley, but effects were still observed in the Hidden Valley monitor well.

²² *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256.

²³ *See* NSE Ex. No. 236.

²⁴ NSE Ex. 256, pp. 43–46, 50–51. *See also*, USGS, *Water Data for Nevada*, <https://bit.ly/nvwater>.

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(BLM), MBOP, MVWD, CSI, Great Basin Water Network (GBWN) and Center for Biological Diversity (CBD) submitted either reports or letters.

WHEREAS, in its report, SNWA addressed water levels throughout the Order 1169 basins. SNWA acknowledged that hydrologic connectivity supported the potential need for redistribution of existing pumping, and indirectly acknowledged the limitation on availability of water to satisfy the pending applications.²⁵ SNWA further acknowledged declines to spring flow in the Pederson and Pederson East springs as a result of the aquifer test, but characterized the decline in spring flow at the Warm Springs West location as minimal. SNWA further correlated the declining trends as associated with climate but opined that Muddy River flow did not decline as a result of the aquifer test and carbonate-rock aquifer pumping; rather, impact to Muddy River flows were due to alluvial aquifer pumping.²⁶

WHEREAS, CSI, through a letter, agreed with SNWA's report and asserted that additional water resources could be developed within the Coyote Spring Valley north of the Kane Springs Fault, which supported granting new appropriations of water.²⁷

WHEREAS, the United States Department of Interior Bureaus (USFWS, NPS and BLM) concluded that the aquifer test provided sufficient data to determine the effects of the aquifer drawdown as well as identify drawdown throughout the region and was sufficient to project future pumping effects on spring flow. Based upon their analysis, the Department of Interior Bureaus concluded that water-level declines due to the aquifer test encompassed 1,100 square miles throughout the Order 1169 study basins. Additionally, the Department of Interior Bureaus' analysis found a direct correlation between the aquifer test pumping and flow declines at Pederson, Plummer and Apcar units and Baldwin Spring, all springs critical to the Moapa dace habitat, and asserted that pumping at the Order 1169 rate at well MX-5 in Coyote Spring Valley could result in both of the high-altitude Pederson and Pederson East springs going dry in 3 years or less.²⁸

²⁵ See NSE Ex. 245, *Southern Nevada Water Authority Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 23–25.

²⁶ *Id.*

²⁷ NSE Ex. 247, *Coyote Springs Investments, LLC Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²⁸ See, e.g., NSE Ex. 14, pp.15–18. See also NSE Ex. 256.

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WHEREAS, the Department of Interior Bureaus further found that the groundwater withdrawals that occurred in Coyote Spring Valley during the Order 1169 aquifer test represented approximately one-third of the then existing water rights within Coyote Spring Valley, concluding that even one-third of the existing water rights could not be developed without adversely impacting spring flow to the headwaters of the Muddy River and habitat for the Moapa dace.²⁹ Ultimately, the Department of Interior Bureaus concluded that there was insufficient water available for the pending applications, and that the area that was subject to the Order 1169 aquifer test behaved as one connected aquifer and pumping in one basin would have similar effects on the whole aquifer.³⁰

WHEREAS, MBOP's report disagreed with the magnitude of drawdown resulting from the Order 1169 aquifer test, but ultimately concluded carbonate-rock aquifer pumping in Coyote Spring Valley and the Muddy River Springs Area would have a one-to-one impact on Muddy River flows.³¹ MBOP opined to the existence of a southern flow field, which included California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area, that could be developed without depleting spring flows. MBOP also argued that changes in the groundwater levels were directly tied to water level declines in Lake Mead.³²

WHEREAS, MVWD's report was limited to water levels and flows within the Muddy River Springs Area. In its report, MVWD acknowledged the groundwater level declines resulting from the aquifer test, including decreased spring flow at the Pederson springs, Warm Springs West gage and Baldwin Spring, but not at Jones Spring or Muddy Spring.³³ Ultimately, MVWD concluded that additional water was available in the Lower Moapa Valley, as that aquifer did not appear hydrologically connected to the regional carbonate-rock aquifer.

WHEREAS, GBWN presented a report that recognized the decline in the groundwater levels in Coyote Spring Valley and discharge to the Muddy River Springs Area resulting from the

²⁹ *Id.*

³⁰ *Id.*

³¹ See NSE Ex. 252, *Moapa Band of Paiute Indians Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 25.

³² *Id.*

³³ NSE Ex. 250, *Moapa Valley Water District Basin 220 Well Site Analysis*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 251, *Moapa Valley Water District Evaluation of MX-5 Pumping Test on Springs and Wells in the Muddy Springs Area*, dated June 24, 2013, Hearing on Interim Order 1303, official records of the Division of Water Resources.

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aquifer test.³⁴ However, GBWN believed that the aquifer test failed to provide sufficient data to determine water availability throughout the other study basins. GBWN did assert that pumping of existing rights within all of the study basins would unacceptably decrease spring discharge.³⁵

WHEREAS, CBD, relying on GBWN's technical report, opined that pumping existing water rights within the Order 1169 study basins would result in unacceptable decline in spring flow, ultimately threatening the Moapa dace and the habitat necessary for the species survival.³⁶

WHEREAS, based upon the findings of the Order 1169 aquifer test, in denying the pending applications the State Engineer found: (1) that the information obtained from the Order 1169 aquifer test was sufficient to document the effects of pumping from the carbonate-rock aquifer on groundwater levels and spring flow and that the information could assist in forming opinions regarding future impacts of groundwater pumping and availability of groundwater in the study basins; (2) that the impacts of aquifer test pumping in Coyote Spring Valley was widespread throughout the Order 1169 aquifer test study basins and that the additional pumping in Coyote Spring Valley was a significant contributor to the decline in the springs that serve as the headwaters of the Muddy River and habitat for the Moapa dace; and, (3) that additional pumping from the then pending applications would result in significant regional water-level decline, and decreases in spring and Muddy River flows.³⁷

WHEREAS, the basins that were included in the Order 1169 aquifer test were acknowledged to have a unique hydrologic connection and share the same supply of water.³⁸ The State Engineer further went on to find that the total annual supply to the basins could not be more than 50,000 acre-feet, that the perennial yield is much less than that because the Muddy River and the springs in the Warm Springs area utilize the same supply, and that the quantity and location of

³⁴ NSE Ex. 246, *Great Basin Water Network Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

³⁵ *Id.*

³⁶ NSE Ex. 248, *Center for Biological Diversity Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

³⁷ NSE Exs. 14–21. The study basins include Coyote Spring Valley, Garnet Valley, Hidden Valley, Muddy River Springs Area, California Wash, and that portion of the Black Mountains Area lying within the LWRFS was defined as those portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; Section 13 and those portions of Sections 1, 11, 12, and 14, T.19S., R.63E., M.D.B.&M.; Sections 5, 7, 8, 16, 17, and 18 and those portions of Sections 4, 6, 9, 10, and 15, T.19S., R.64E., M.D.B.&M.

³⁸ *See, e.g.*, NSE Ex. 14, p. 24.

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any groundwater that could be developed without conflicting with senior rights on the Muddy River and the springs was uncertain.³⁹

II. INTERIM ORDER 1303

WHEREAS, on January 11, 2019, the State Engineer issued Interim Order 1303 designating the Lower White River Flow System (LWRFS), a multi-basin area known to share a close hydrologic connection, as a joint administrative unit for purposes of administration of water rights. The Interim Order defined the LWRFS to consist of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the portion of the Black Mountains Area Hydrographic Basins as described in the Interim Order.⁴⁰ Pursuant to Interim Order 1303, all water rights within the LWRFS were to be administered based upon their respective dates of priority in relation to other rights within the regional groundwater unit.

WHEREAS Interim Order 1303 recognized the need for further analysis of the LWRFS because the pre-development discharge of 34,000 acre-feet of the Muddy River system plus the more than 38,000 acre-feet of existing groundwater appropriations within the LWRFS greatly exceed the total water budget, which was determined to be less than 50,000 acre-feet.⁴¹ Stakeholders with interests in water right development within the LWRFS were invited to file a report with the Office of the State Engineer addressing four specific matters, generally summarized as: 1) The geographic boundary of the LWRFS, 2) aquifer recovery subsequent to the Order 1169 aquifer test, 3) the long-term annual quantity and location of groundwater that may be pumped from the LWRFS, and 4) the effect of movement of water rights between alluvial and carbonate wells within the LWRFS. Stakeholders were also invited to address any other matter believed to be relevant to the State Engineer's analysis.

WHEREAS, on May 13, 2019, the State Engineer amended Interim Order 1303 modifying the deadlines for the submission of reports and rebuttal reports by interested stakeholders. Reports

³⁹ *Id.*

⁴⁰ See NSE Ex. 1, *Order 1303 and Addendum to Interim Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁴¹ *Id.*, p. 7.

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submitted by interested stakeholders were intended to aid in the fact-finding goals of the Division.⁴²

WHEREAS, a public hearing was held in Carson City, Nevada between, September 23, 2019, and October 4, 2019. The purposes of this hearing were to afford stakeholder participants who submitted reports pursuant to the solicitation in Interim Order 1303 an opportunity to provide testimony on the scientific data analysis regarding the five topics within the Interim Order and to test the conclusions offered by other stakeholder participants.

WHEREAS, during the Interim Order 1303 hearing, testimony was provided by expert witnesses for the participants CSI, USFWS, NPS, MBOP, SNWA and LVVWD⁴³, MVWD, Lincoln County Water District and Vidler Water Company (LC-V), City of North Las Vegas (CNLV), CBD, Georgia Pacific Corporation (Georgia Pacific) and Republic, Nevada Cogeneration Associates Nos. 1 and 2 (collectively "NCA"), Muddy Valley Irrigation Company (MVIC), Western Elite Environmental, Inc. and Bedroc Limited, LLC (collectively "Bedroc"), and NV Energy.

WHEREAS, following the conclusion of the Interim Order 1303 hearing, stakeholder participants were permitted to submit written closing statements no later than December 3, 2019. The specific area evaluated, data analyzed, and methodology used varied by participant. Generally, participants relied on spring and streamflow discharge, groundwater level measurements, geologic and geophysical information, pumping data, climate data, and interpretations of aquifer hydraulics. Methodologies applied ranged from conceptual observations to statistical analysis to numerical and analytical models; the level of complexity and uncertainty differing for each.

WHEREAS, each of the participants' conclusions with respect to the topics set forth in Interim Order 1303 are summarized as follows:

⁴² *Id.*, pp. 16–17.

⁴³ SNWA is a regional water authority with seven water and wastewater agencies, one of which is LVVWD. References to SNWA include its member agency, LVVWD, which too retains water rights and interests within the LWRFS.

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Center for Biological Diversity

The primary concern of the CBD was to ensure adequate habitat for the survival and recovery of the Moapa dace. CBD felt "that the Endangered Species Act is the primary limiting factor on the overall quantity of allowable pumping within the [LWRFS] and thus [...] geared [the] analysis toward that goal of protecting the dace." The Moapa dace primarily resides in the springs and pools of the Muddy River; protecting those areas of habitat are of the utmost importance to CBD's goal and have the collateral benefit of protecting the Muddy River decreed rights. Furthermore, CBD "believe[d] that withdrawals from the carbonate aquifer that cause a reduction in habitat quantity for the dace are a take under the Endangered Species Act and thus prohibited."⁴⁴

CBD urges that Kane Springs Valley Hydrographic Basin (Kane Springs Valley) be included and managed as part of the LWRFS; otherwise CBD did not dispute the boundary as presented in Interim Order 1303. The inclusion of Kane Springs Valley was based on a shallow hydraulic gradient between Coyote Spring Valley and Kane Springs Valley; propagation of water level decline into Kane Springs Valley during the Order 1169 aquifer test; and a finding that the carbonate-rock aquifer extends into Kane Springs Valley. In CBD's opinion, adequate management of the LWRFS does not require that the administrative boundary include the White River Flow System north of Coyote Spring Valley.⁴⁵

CBD identified a long-term, declining trend commencing in the 1990s in carbonate-rock aquifer water levels within the Muddy River Springs Area, which was accelerated by the Order 1169 aquifer test. Although CBD observed a partial, immediate recovery in the carbonate-rock aquifer water levels and spring flows, CBD finds that full recovery to pre-Order 1169 aquifer test conditions were never realized. Concurring with multiple other participants, CBD identified higher water levels in response to wet years despite the continued decline in the overall trend in the hydrographs. However, with regards to long-term drought, in their review of the Climate Division Data for southern Nevada, CBD saw no indication of a 20-year drought and disagreed with the conclusions and analysis presented by MBOP. Decreased spring flows in conjunction with

⁴⁴ See CBD Ex. 3, *CBD Order 1303 Report by Dr. Tom Myers*; 27 pp., Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 1; Transcript 1504–1505.

⁴⁵ See CBD Ex. 3, pp. 1, 2, 12, 17, 19; See CBD Ex. 4, *CBD Order 1303 Rebuttal in Response to Stakeholder Reports by Dr. Tom Myers*; 30 pp., Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 17–21; Tr. 1516; 1520–1521; 1526–1527; 1538–1539; CSI Ex. 2, p. 38; LC-V Ex. 2, pp. 11–14.

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increased carbonate-rock aquifer pumping, led the CBD to infer the dependency of spring flows on carbonate-rock aquifer water supply.⁴⁶

Again, with emphasis on protecting spring flows, and thus the Moapa dace habitat, CBD did not support any pumping of the carbonate-rock aquifer. CBD's desired outcome would be to avoid decreases in spring flow in the Warm Springs area attributed to continued carbonate-rock aquifer pumping. CBD postulated that surface water rights on the Muddy River will be protected by limiting carbonate-rock aquifer pumping.

Alternatively, CBD speculated that some alluvial aquifer pumping, within the Muddy River Springs Area and Coyote Spring Valley, could be sustained without significantly impacting the Warm Springs area. A preliminary estimate of 4,000 afa of sustainable alluvial aquifer pumping was proposed, based on the existing pumping within the Muddy River Springs Area and considering pumping in the 1990s near 5,000 afa when alluvial aquifer water levels were stable.⁴⁷

Church of Jesus Christ of Latter-day Saints

The Church of Jesus Christ of Latter-day Saints (the Church) chose not to directly participate in the hearing but joined the evidentiary submissions of CNLV.⁴⁸ In response to the directives set forth in Interim Order 1303 and considering the testimony provided, the Church requests the continued administration and management of the LWRFS as identified in Interim Order 1303, and to allow for change applications throughout the LWRFS basins that move pumping of groundwater further away from the Muddy River Springs Area and from the alluvial aquifer to the carbonate-rock aquifer. The Church further requests that the testimony and recommendation of Dwight Smith, PE, PG on behalf of CNLV be considered and adopted.⁴⁹

⁴⁶ See CBD Ex. 3, pp. 1, 24; See CBD Ex. 4, p. 8–10, 21–25; Tr. 1508–1525; LC-V Ex. 2, p. 12, GP-REP Ex. 2, p. 3; CBD's expert suggest that the Palmer Drought Severity Index is more robust to evaluate for drought rather than using precipitation.

⁴⁷ See CBD Ex. 3, pp. 20–26; See CBD Ex. 4, p. 28–29; Tr. 1525–1528.

⁴⁸ See Letter from the Church, received August 15, 2019, Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁴⁹ See *Closing Brief of the Church of Jesus Christ of Latter-Day Saints* (Church closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

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City of North Las Vegas

In CNLV's report submissions and closing statement it addressed four questions set forth in Interim Order 1303.⁵⁰ CNLV generally urges for more analysis and study of the LWRFS before administrative decisions are made due to lack of agreement on fundamental interpretations of the water availability and basin connectivity. It was agreed to by CNLV that most of Garnet Valley and a small portion of the Black Mountains area were within the larger carbonate-rock aquifer underlying the LWRFS basins, but that there is uncertainty in the boundaries of Garnet Valley with California Wash and Las Vegas Valley Hydrographic Basin (Las Vegas Valley).⁵¹ With respect to the recovery of the groundwater aquifer following the Order 1169 aquifer test, CNLV concluded that the record and evidence demonstrates a long-term declining trend in the groundwater level since the late 1990s and that pumping responses can propagate relatively quickly through the carbonate-rock aquifer and drawdown is directly related to the pumping.⁵²

While CNLV did consider the long-term quantity of groundwater that may be developed without adversely impacting discharge to the Warm Springs area, its opinions were limited to the sustainability of pumping within Garnet Valley.⁵³ CNLV concluded that the safe yield concept should be applied to the management of pumping within the LWRFS and that pumping between 1,500 afa to 2,000 afa does not appear to be causing regional drawdown within the LWRFS carbonate-rock aquifer and that pumping this quantity of water may be sustainable within the APEX Industrial Park area of Garnet Valley.⁵⁴ Finally, CNLV asserted that movement of alluvial water rights from the Muddy River Springs Area along the Muddy River would reduce the capture

⁵⁰ See CNLV Ex. 5, *City of North Las Vegas Utilities Department: Interim Order 1303 Report Submittal from the City of North Las Vegas – July 2, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See CNLV Ex. 6, *Rebuttal Document submitted on behalf of the City of North Las Vegas, to Interim Order 1303 Report Submittals of July 3, 2019 – Prepared by Interflow Hydrology – August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. See Tr. 1416–66, and *City of North Las Vegas' Closing Statement* (CNLV Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁵¹ See CNLV Ex. 5, pp. 2–3. See also CNLV Ex. 3, *Garnet Valley Groundwater Pumping Review for APEX Industrial Complex, City of North Las Vegas, Clark County, Nevada- Prepared by Interflow Hydrology, Inc.- July 2019*, pp. 7–8, 38.

⁵² *Id.*, p. 3, Technical Memo, pp. 14–16.

⁵³ *Id.*, pp. 3–4.

⁵⁴ *Id.*, p. 4., Technical Memo, p. 45.

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of Muddy River flow, move more senior water rights into Garnet Valley to support a secure water supply for the municipal uses within the APEX area, and would support overall objectives relating to the management of the LWRFS.⁵⁵ CNLV advocated that transferring water rights between alluvial aquifer and carbonate-rock aquifer should be considered on a case-by-case basis with consideration given as to location, duration, and magnitude of pumping.⁵⁶

CNLV disagreed with certain conclusions of the NPS relating to the inclusion of the entirety of the Black Mountains Area within the LWRFS boundaries and had concerns relating to the reliability of the Tetra Tech model for future water resource management within the LWRFS.⁵⁷ CNLV further disagreed with stakeholder conclusions that movement of groundwater withdrawals from the alluvial aquifer along the Muddy River to the carbonate-rock aquifer in Garnet Valley will not alleviate the conflicts to Muddy River flow, rather concluding that there may be benefits for overall management of the LWRFS.⁵⁸ Further, CNLV disagreed with certain findings regarding water flow through the carbonate-rock aquifer, finding that it is likely that some groundwater can be pumped within Garnet Valley without capturing groundwater that would otherwise discharge to the Warm Springs area and the Muddy River.⁵⁹ Finally, in its rebuttal the CNLV joined other stakeholders in supporting the conclusion that there is a quantity of water that may be sustainably developed within the LWRFS and that use of carbonate-rock aquifer groundwater in Garnet Valley is critical to the short-term and long-term management and development of the APEX Industrial Complex.⁶⁰

Coyote Springs Investments

In presenting its opinions and conclusions CSI's focus was primarily on climate as the foundation for groundwater elevation declines after the Order 1169 aquifer test, and additional geophysical research that provided evidence of a structural block isolating the west side of Coyote Spring Valley.

⁵⁵ *Id.*, Technical Memo, p. 48–49.

⁵⁶ *Id.*

⁵⁷ *See* CNLV Ex. 6, pp. 1–2.

⁵⁸ *Id.*, p. 2.

⁵⁹ *Id.*, pp. 2–3.

⁶⁰ *Id.*, p. 3.

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CSI did a statistical analysis of climate data, and determined from the results that 1998, 2004, 2005, and 2010 were wetter than normal, with a drying trend from 2006 to 2017.⁶¹ The Order 1169 aquifer test took place toward the end of an extended dry period when all water resources throughout the LWRFS were negatively affected.⁶² Additionally, annual cyclical patterns of groundwater pumping should not be confused with long-term climate variability.⁶³

CSI challenged the basic assumption that the LWRFS, as proposed in Interim Order 1303, is a homogenous unit.⁶⁴ CSI could not duplicate the results of the SeriesSEE, and its own Theis solution modeling concluded that a greater impact occurred from pumping at a well closer in proximity to Pederson Spring than pumping from a well further away, or the combined effect of both wells.⁶⁵ CSI also acknowledged that due to the fragmented nature of the LWRFS, the Theis solution is of limited utility.⁶⁶

CSI presented geologic and geophysical information in support of the idea that the LWRFS administrative unit is a geophysically and hydrogeologically heterogeneous area, characterized by multiple flow paths defined by faults and structural elements that control the occurrence and movement of regional and local groundwater along the western side of Coyote Spring Valley, the eastern side of Coyote Spring Valley, and from Lower Meadow Valley Wash into the LWRFS.⁶⁷ CSI stated that the LWRFS does not include Kane Springs Valley.⁶⁸

⁶¹ CSI Ex. 1, *CSI July 3, 2019 Order 1303 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5; Tr. 53.

⁶² CSI Ex. 1, p. 5.

⁶³ CSI Ex. 2, *CSI August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 7.

⁶⁴ CSI Ex. 1, p. 7.

⁶⁵ CSI Ex. 1, p. 7; Tr. 131–132.

⁶⁶ Tr. 154.

⁶⁷ CSI Ex. 2, p. 2; *CSI Closing Statement* (CSI Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; CSI recommended including Lower Meadow Valley Wash in its Rebuttal report. See CSI Ex. 2, p. 12; Mr. Herrema said Lower Moapa Valley, but the report said Lower Meadow Valley 10:10.

⁶⁸ CSI Ex. 1, p. 15; the outflow from Kane Springs Valley is included in the water budget, but due to isolating geologic features, groundwater elevations in Kane Springs Valley are not impacted by pumping in the LWRFS, Tr. 135:7–137:3, 160:2–12.

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CSI engaged a geophysicist to conduct a CSAMT survey at multiple points in the valley.⁶⁹ CSI's CSAMT study showed evidence of a prominent carbonate block bounded on either side by normal faults.⁷⁰ CIS asserts that the carbonate block isolates recharge from the zone west of the block, such that it eliminates or limits contribution of local recharge to the Warm Springs area.⁷¹ Faulting has created a preferred path for groundwater flow "from the east side Coyote Spring Valley to the Muddy River Springs Area".⁷²

CSI relied on a water budget as the best method to determine available water in the LWRFS, accounting for recharge and subsurface flow as well as climatic variations.⁷³ Comparing several models of recharge, CSI estimated recharge at 5,280 afy from the Sheep Range to the western side of Coyote Spring Valley.⁷⁴ CSI stated that 30,630 afa can be pumped from the LWRFS, but there would be impacts from pumping the water, and that the Coyote Spring Valley can sustain 5,280 afa of pumping from the western side without impact to the Warm Springs area or the Muddy River.⁷⁵

As asserted by CSI, groundwater pumping from the carbonate-rock aquifer in the Muddy River Springs Area affects flow in the carbonate-rock aquifer to the alluvial aquifer, which then affects flow from the alluvial aquifer to the Muddy River.⁷⁶ CSI argues that effects are dependent on well location, geologic formations, hydraulic gradients, and elevation.⁷⁷ Transfers between carbonate and alluvial pumping should be made on a case-by-case basis, analyzing place of use, points of diversion, and quantity of groundwater.⁷⁸ Movement of water rights between alluvial wells and carbonate-rock aquifer wells will only serve to shift the timing and location of impacts and not the amount of the impact.⁷⁹

⁶⁹ CSI Ex. 1, p. 25

⁷⁰ CSI Ex. 1, p. 25.

⁷¹ CSI Ex. 1, p. 29; evidence of impermeability, Tr. 181.

⁷² CSI Ex. 1, p. 29.

⁷³ CSI Closing.

⁷⁴ CSI Ex. 1, pp. 31–40.

⁷⁵ Tr. 221–223; CSI Closing, pp. 8–9.

⁷⁶ CSI Closing.

⁷⁷ CSI Closing, p. 19.

⁷⁸ CSI Closing.

⁷⁹ CSI Ex. 1, p. 58.

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As a consequence of the heterogenous nature of the LWRFS, CSI recommended sustainable management of the LWRFS through the creation of "Management Areas" that recognize flow paths and their relative contributions to spring flow, surface flow, evapotranspiration, and sub-surface outflow.⁸⁰ For example, though pumping in the Muddy River Springs Area near the Warm Springs area would have a direct impact on available surface water resources, structural blocks and faults isolate the effect of groundwater pumping in other areas of the LWRFS.⁸¹ Thus CSI does not recommend a blanket ban on carbonate-rock aquifer pumping, or a decrease in carbonate-rock aquifer pumping in exchange for alluvial aquifer pumping.

Georgia Pacific and Republic

Dry Lake Water, LLC, Georgia Pacific and Republic submitted initial and rebuttal responses to Interim Order 1303 and offered testimony during the hearing.⁸² In their response, Georgia Pacific and Republic acknowledged impacts to groundwater elevations throughout the LWRFS, including wells in the Black Mountains Area and Garnet Valley, which does demonstrate a degree of hydraulic connectivity throughout the carbonate-rock aquifer. However, Georgia Pacific and Republic called for collection of more scientific evidence to further understand the LWRFS and its boundaries. Further, it was their opinion that climate, seasonal fluxes and pumping within Garnet Valley and the Black Mountains Area resulted in the groundwater declines observed during the Order 1169 aquifer test.⁸³ Ultimately, Georgia Pacific and Republic do not believe sufficient information exists to draw distinct conclusions as to the cause of the groundwater declines during the Order 1169 aquifer test and whether carbonate-rock aquifer pumping within

⁸⁰ CSI Closing.

⁸¹ CSI Ex. 2, p. 17.

⁸² The initial response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific, and Republic. See GP-REP Ex. 1, *Broadbent July 2, 2019 Initial Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. The rebuttal response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific Gypsum LLC, and Republic. See GP-REP Ex. 2, *Broadbent August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. However, the expert only appeared at the Hearing on Interim Order 1303 on behalf of Georgia Pacific and Republic. See Tr. 1588-91.

⁸³ See GP-REP Ex. 01, GP-REP Ex. 02, and *Closing Argument of Georgia Pacific Corporation and Republic Environmental Technologies, Inc.* (Closing GP-REP), Hearing on Interim Order 1303, official records of the Division of Water Resources.

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the Garnet Valley and the Black Mountains Area has a measurable impact to spring flow in the Warm Springs area.⁸⁴

Great Basin Water Network

GBWN elected to pose procedural suggestions relating to public involvement, availability of documents and data, transparency, and decision making, and did not submit a report with an independent analysis addressing the questions in Interim Order 1303.⁸⁵ GBWN advocates for sustainable management of the entirety of the White River Flow System as one unit based on the interconnected nature of all of the hydrologically connected basins, although no analysis to support which areas this would include was provided. GBWN relies on conclusory statements to establish the interconnected nature of the system as support for its position. Later, GBWN chose not to participate in the hearing nor submit a rebuttal report, closing arguments, or public comment.

Lincoln County Water District and Vidler Water Company

LC-V's participation in the LWRFS hearing was driven by their existing and pending groundwater rights in Kane Springs Valley, and an interest in excluding Kane Springs Valley from the LWRFS management area.⁸⁶ They disputed that Kane Springs Valley should be included within the LWRFS boundary based on their assertion of: prior decisions of the State Engineer that acknowledged the separate nature of the basin from the rest of the LWRFS, groundwater elevation comparisons, precipitation and recharge data, groundwater chemistry, and geophysical study results. In general, Kane Springs Valley should be managed based on its perennial yield, recognizing that there is groundwater flow to the LWRFS as there are from other basins into the LWRFS, but where they are excluded from the proposed management area.⁸⁷

⁸⁴ See Closing GP-REP.

⁸⁵ *GBWN Report on Order 1303*, (GBWN Report), Hearing on Interim Order 1303, official records of the Division of Water Resources.

⁸⁶ LC-V Ex. 1, *Lower White River Flow System Interim Order #1303 Report Focused on the Northern Boundary of the Proposed Administrative Unit, prepared by Lincoln County Water District and Vidler Water Company in Association with Zonge International Inc.*, dated July 3, 2019, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2-1.

⁸⁷ LC-V Ex. 2, *Rebuttal Submittal to Reports Submitted in Response to Interim Order #1303, dated August 16, 2019 and Attachments A, B, C, D and E containing the reports or technical memorandums of Greg Bushner, Peter Mock, Thomas Butler, Todd Umstot and Norman Carlson.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 7, 14–15.

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Various rulings of the State Engineer have previously addressed whether appropriation of groundwater from Kane Springs Valley would affect the Muddy River Springs Area.⁸⁸ LC-V states that these findings have not been challenged by any of the Order 1169 participants.⁸⁹ However, to the extent that SNWA relied on multiple linear regression models to establish groundwater flow from Kane Springs Valley to the LWRFS, LC-V do not agree.⁹⁰

LC-V identified a distinct “break,” or local increase, in water levels in the regional hydraulic gradient between wells drilled in the LWRFS versus wells drilled in Kane Springs Valley and northern Coyote Spring Valley.⁹¹ It attributed the break to geologic structures located throughout the carbonate-rock aquifer. Although wells within the LWRFS exhibit very consistent groundwater levels, indicative of high transmissivity values across the area, the gradient between well KPW-1 and down-basin wells is much steeper, implying an impediment to groundwater flow near the mouth of Kane Springs Valley.⁹²

In a 2006 hearing for protested water rights applications, LC-V presented an analysis of the regional geochemistry data including stable isotopes, temperature, and carbon-14 data.⁹³ That analysis found that the groundwater pumped from Kane Springs Valley could not be identified in the source water for the Big Muddy Spring, nor other springs farther south and outside the boundaries of the LWRFS.⁹⁴ LC-V concluded that groundwater pumped from production well KPW-1 is on a different groundwater flow path from the springs, consistent with the differences in hydraulic gradients, groundwater levels, and geophysical data.⁹⁵ CSVM-4, a well located in Coyote Spring Valley, and KPW-1, in Kane Springs Valley, have similar temperatures compared to the other wells in the basin, and a lower percentage difference on other markers tracked throughout groundwater in the basin.⁹⁶ LC-V argues that the water from these wells is chemically

⁸⁸ LC-V Ex. 1, pp. 2-2 through 2-3, citing State Engineer’s Rulings 5712, 6254, 5712.

⁸⁹ LC-V Ex. 1, p. 2-3.

⁹⁰ Testimony generally at Tr. 1311–1318. “... simply having correlation is not proof of causation. Causation is neither proved nor evaluated in a regression analysis.” Tr. 1303.

⁹¹ LC-V Ex. 1, p. 3-1.

⁹² LC-V Ex. 1, pp. 1-1, 3-1 through 3-4. LC-V went on to conclude that local groundwater recharge occurs in Kane Springs Valley that does not flow to the LWRFS, and therefore there is available unappropriated water in the basin. LC-V Ex. 1, p. 3-5.

⁹³ LC-V Ex. 1, Appendix C, pp. 111–153.

⁹⁴ *Id.*, pp. 124–125.

⁹⁵ “Gradient alone does not mean flow.” Thomas Butler, witness on behalf of LC-V, Tr. 1281.

⁹⁶ Tr. 1281–1282; LC-V Ex. 1, pp. 3-7 through 3-11.

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unique and does not appear in any other wells in the LWRFS.⁹⁷ LC-V concludes carbon isotope data also confirmed that the water from Kane Springs Valley does not appear in the Muddy River Springs area.⁹⁸

LC-V engaged a geophysical company to perform a CSAMT survey across the boundary line between Kane Springs Valley and Coyote Spring Valley, and identified significant geologic structures in southern Kane Springs Valley and northern Coyote Spring Valley.⁹⁹ Several transect lines were conducted perpendicular to the axis of the Kane Springs Valley, and one was also conducted along the axis of the southern part of the basin.¹⁰⁰ Additional transects were run in Coyote Spring Valley.¹⁰¹ The results of the geophysical data validated concealed faulting indicated on existing maps, and was ground-truthed with observations in the field.¹⁰² Results indicated a previously unmapped fault at the mouth of Kane Springs Valley, which LC-V named the Northern Boundary LWRFS fault, with a potentially 2,500-foot offset of materials with different resistivities.¹⁰³ LC-V argues that the extensive faulting that occurs in southern Kane Springs Valley and northern Coyote Spring Valley form the basis for the exclusion of Kane Springs Valley from the LWRFS.¹⁰⁴

LC-V gave no opinion on the long-term annual quantity of groundwater that could be pumped from the LWRFS.¹⁰⁵ LC-V attributes all reduction in flows of the Muddy River and its associated springs to carbonate-rock aquifer pumping within the Muddy River Springs Area, and finds no discernable effect from carbonate-rock aquifer pumping occurring in Coyote Springs

⁹⁷ Tr. 1284.

⁹⁸ Tr. 1286.

⁹⁹ LC-V Ex. 1, pp. 1-1, 4-1 through 4-10.

¹⁰⁰ LC-V Ex. 1, p. 4-3.

¹⁰¹ LC-V Ex. 1, p. 4-3.

¹⁰² LC-V Ex. 1, p. 4-8, Tr. 1322.

¹⁰³ Tr. 1271-1272; LC-V Ex. 1, p. 4-9.

¹⁰⁴ LC-V Ex. 1, p. 7-1 through 7-2; Tr. 1408. Questions from the National Park Service and the State Engineer inquired whether the areas of high resistivity in the CSAMT necessarily implied low transmissivity, low permeability of the rock. LC-V conceded that the resistivity information alone does not provide data about the hydraulic properties of either side of the resistive area, but when considered with all available information, LC-V concluded that the fault is likely an impediment to groundwater flow. Tr. 1327-1328, 1363-1364.

¹⁰⁵ LC-V Ex. 1, p. 5-2.

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Valley.¹⁰⁶ As a result, LC-V finds that the efforts to protect the Warm Springs area must focus on groundwater pumping within the Muddy River Springs Area itself.¹⁰⁷

Moapa Band of Paiutes

The MBOP participated in the administrative hearing due to their interest in the outcome of the proceedings and how it may affect their pending water right applications within California Wash. A regional approach, spanning a large aerial expanse, was taken by MBOP; the analysis and modeling efforts extended into central Nevada and Utah. MBOP stands apart from other participants with their interpretation of the data.¹⁰⁸ MBOP opposed management of the LWRFS as one basin and argues the scientific consensus is lacking amongst participants.¹⁰⁹ Regarding the interpretation of other participants, MBOP disagreed with the methodology and application of the 2013 USFWS SeriesSEE analysis and SNWA's multiple linear regression and requests repudiation of both.¹¹⁰

While not agreeing with the proposed boundaries of the LWRFS, MBOP did not provide a clear suggestion for which basins or portions therein should be included or excluded. MBOP suggested that pumping in California Wash has little to no impact on the Warm Springs area.¹¹¹ MBOP further suggested there are two capture zones, separated by a hydrodynamic and hydrochemical divide, which transects the Moapa River Indian Reservation area and results in south-flowing groundwater into the Las Vegas Valley through the LWRFS, bypassing the Muddy

¹⁰⁶ LC-V Ex. 1, p. 5-3.

¹⁰⁷ LC-V Ex. 1, p. 5-3.

¹⁰⁸ Tr. 772-773; 839.

¹⁰⁹ See *Closing Statement by the Moapa Band of Paiute Indians for Order 1303 Hearing* (MBOP Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 1-2, 6.

¹¹⁰ *Id.*, pp. 7-12, 15-16; See MBOP Ex. 3, Johnson, C., and Mifflin, M. *Rebuttal Report of the Moapa Band of Paiutes in Response to Stakeholder Technical Reports Filed under Order #1303: unpublished report and appendices*, August 16, 2019. 27 p., Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹¹¹ See MBOP Ex. 2, Johnson, C., and Mifflin, M. *Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development. Initial Report of the Moapa Band of Paiutes in Response to Order #1303: unpublished report and appendices*, July 3, 2019. 84 p., Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 4, 14, 35; Tr. 819.

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River Springs Area.¹¹² This hydrodynamic divide theory was not shared by SNWA, CBD, CSI, and NPS.¹¹³

Several participants agree that climate impacts were observed in the hydrographs, e.g., periods of wet and dry; however, MBOP interpreted the existing data to show that climate-driven decline, specifically drought, as the primary response observed in the long-term declining groundwater levels.¹¹⁴ Thus, MBOP concluded that no reduction in pumping will restore high-elevation spring flows.¹¹⁵ MBOP did not agree with other participants that decreasing groundwater levels and spring flows were attributed to increased carbonate-rock aquifer pumping beginning in the early 1990s.¹¹⁶

A quantity available for sustainable pumping was not proposed, but MBOP presumed more water is available in California Wash than previously thought.¹¹⁷ A flux of approximately 40,000 cfs of south-flowing groundwater into the Las Vegas Valley, bypassing the Muddy River Springs Area, was postulated in the initial report as possible with the hydrodynamic divide; however, during the hearing this quantity was given a range of plus or minus an order of magnitude based on assumptions for calculations.¹¹⁸

MBOP acknowledged that the Muddy River is connected to the alluvial aquifer and thus pumping from the alluvial and carbonate-rock aquifers in the Muddy River Springs Area impact the Muddy River flows.¹¹⁹ Therefore, to mitigate impacts to the Muddy River, MBOP proposed that alluvial aquifer pumping, specifically between Arrow Canyon and White Narrows, can be moved to the carbonate-rock aquifer in basins to the south, such as California Wash, with minimal anticipated impacts to the Muddy River flows, rather than moving alluvial aquifer pumping from the Muddy River Springs Area to the carbonate-rock aquifer in connected areas, where impacts

¹¹² See MBOP Ex. 2, pp. 2, 4, 12, 14, 20, 35, 55; Tr. 812; 845.

¹¹³ SNWA Ex. 9, pp. 12–13; CBD Ex. 4, p. 15; CSI Ex. 2, p. 23; NPS Ex. 3, *National Park Service's Response to July 2019 Interim Order 1303 Reports*, Waddell, August 16, 2019, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 4.

¹¹⁴ See MBOP Ex. 2, pp. 3, 26–32, 35; Tr. 764–771; 805.

¹¹⁵ See MBOP Ex. 2, pp. 3, 35; Tr. 821–826.

¹¹⁶ See MBOP Ex. 2, p. 29; Tr. 775, 838–840; 848.

¹¹⁷ See MBOP Ex. 2, pp. 2, 20, 35.

¹¹⁸ See MBOP Ex. 2, pp. 6, 19, 35; Tr. 850–851.

¹¹⁹ See MBOP Ex. 2, pp. 23–24, 35; Tr. 836.

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proportional to pumping may be expected.¹²⁰ Thus, MBOP proposed favoring temporary over permanent uses and transferring of rights between the carbonate-rock and alluvial aquifers on a case-by-case basis.¹²¹

Moapa Valley Water District

MVWD was created by the Nevada legislature in 1983, pursuant to NRS Chapter 477, to provide water service “vital to the economy and well-being of Moapa Valley.”¹²² MVWD provides municipal water service to approximately 8,500 people with 3,250 metered service connections, including service to the MBOP.¹²³

MVWD supported the inclusion of Kane Springs Valley within the LWRFS boundary.¹²⁴ Data indicated a direct connection between Kane Springs Valley and Coyote Spring Valley. This data included observations that the water level in KMW-1/KSM-1 decreased 0.5 foot over the duration of the Order 1169 aquifer test.¹²⁵ State Engineer’s rulings have concluded that geochemical evidence and groundwater gradient data indicate that groundwater flows from the Kane Springs Valley into Coyote Spring Valley, and MVWD supports LVVWD’s 2001 calculation of that quantity of water at approximately 6,000 afy.¹²⁶ MVWD performed its own calculations of the groundwater gradients from Kane Springs Valley at KMW-1 to EH-4, and concluded that the gradient was “an uninterrupted, continuous, exceptionally flat gradient,” unlike gradients commonly seen in the western U.S., especially in highly fractured areas.¹²⁷ MVWD also

¹²⁰ See MBOP Ex. 2, pp. 23, 35.

¹²¹ See MBOP Closing.

¹²² Tr. 1172.

¹²³ MVWD Ex. 3, *District July 1, 2019 Report in response to Interim Order 1303*, p.5, Hearing on Interim Order 1303, official records of the Division of Water Resources; MVWD Ex. 4, *District August 16, 2019 Rebuttal Report*, p. 1, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVWD has 3,147 afa of water rights in Arrow Canyon. Tr. 1169–1170.

¹²⁴ MVWD Ex. 3, p. 1; Tr. 1175.

¹²⁵ MVWD Ex. 3, p. 1; MVWD Ex. 4, p. 2.

¹²⁶ MVWD Ex. 3, pp. 1–2, referring to State Engineer’s Ruling 5712 (see, NSE Ex. 12, *Ruling 5712*, Hearing on Interim Order 1303, official records of the Division of Water Resources) and MVWD Ex. 8, *Las Vegas Valley Water District, Water Resources and Ground-Water Modeling in the White River and Meadow Valley Flow Systems, Clark, Lincoln, Nye, and White Pine Counties, Nevada (2001)*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 6-3.

¹²⁷ Tr. 1177–1178.

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introduced evidence of a stipulation between LC-V and the USFWS that bases a reduction in pumping in Kane Springs Valley on a lowering of spring discharges in the Warm Springs area, and introduced a letter from SNWA to the State Engineer, as additional support that the participants to the Interim Order 1303 hearing have previously recognized Kane Springs Valley is part of the LWRFS.¹²⁸

MVWD disagreed that a hydrologic barrier exists between Coyote Springs Valley and Kane Springs Valley.¹²⁹ Relying on a 2006 report prepared by another consultant, MVWD said the evidence indicated that the fault at the mouth of Kane Springs Valley was not an impediment to flow, and that there was no evidence of having encountered hydraulic barriers to groundwater flow during a seven-day aquifer test.¹³⁰ Additionally, the “highly transmissive fault zone” is continuous across the basin boundary between Kane Springs Valley and Coyote Spring Valley.¹³¹ MVWD found further support for its position from evidence that KMW-1 showed drawdown during both the seven-day aquifer test on KPW-1, as well as from the Order 1169 aquifer test pumping that occurred from MX-5.¹³² MVWD considered the water level data collected before, during and after the Order 1169 aquifer test, and Warm Springs area spring discharge to support its finding that the fault is not interrupting groundwater flow.¹³³ MVWD found it “questionable” that the first suggestion of a fault that impedes southward groundwater flow would be prepared by LC-V for this hearing.¹³⁴

Although water levels and spring discharge did not recover to the levels measured before the Order 1169 aquifer test, MVWD believed that the LWRFS is at or near steady-state conditions

¹²⁸ Tr. 1195–1197.

¹²⁹ Tr. 1176–1177.

¹³⁰ Tr. 1181–1182. MVWD also quoted from the report that “the fracturing was so extensive that the fractured aquifer system really behaved as an equivalent porous media.” *Id.* MVWD later agreed that this would behave like a sandy aquifer. Tr. 1224.

¹³¹ Tr. 1185.

¹³² Tr. 1250.

¹³³ Tr. 1219.

¹³⁴ *Post-Hearing Brief of Moapa Valley Water District (MVWD Closing)*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 5.

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regarding aquifer recovery.¹³⁵ MVWD viewed this as being consistent with the State Engineer's statements in Interim Order 1303.¹³⁶

Finally, MVWD did not provide a specific quantity of available water but did acknowledge that the "actual safe pumpage" is less than current pumping rates, and recognized a direct relationship between pumping from the carbonate-rock aquifer, spring and Muddy River flows, and alluvial aquifer pumping.¹³⁷ The timing and magnitude of carbonate-rock aquifer pumping effects on spring discharge is dependent on the volume of water pumped and the proximity of a pumping center to the springs; however, all cumulative carbonate-rock aquifer pumping in the seven interconnected basins will eventually cause depletions on the Warm Springs area springs.¹³⁸ Further, if carbonate rights are transferred to the alluvial aquifer there will be depletions to Muddy River flows and impacts to senior Muddy River water right owners.¹³⁹

MVWD raised additional matters that they believed relevant to the analysis under Interim Order 1303. First, they stressed the importance of municipal water rights, and the necessity for a reasonably certain supply of water for future permanent uses without jeopardizing the economies of the communities that depend on the water supply, and to protect the health and safety of those who rely on the water supply.¹⁴⁰ To that end, MVWD requested that the State Engineer consider designating municipal use as the most protected and highest use of water, and to give MVWD the perpetual right to divert 6,791 afa of permitted and certificated rights from its carbonate-rock aquifer wells.¹⁴¹ Second, MVWD stated that it had already satisfied its obligation to protect Moapa dace habitat and senior water rights when it dedicated 1cfs/724 afa, or approximately 25% of the MVWD current diversions, from its most senior water right, to the enhancement of the Moapa dace habitat.¹⁴²

¹³⁵ Tr. 1198, MVWD Ex. 3, p. 4.

¹³⁶ Tr. 1199.

¹³⁷ Tr. 1199-1200; MVWD Closing, pp. 9-10.

¹³⁸ MVWD Ex. 3, p. 5.

¹³⁹ *Id.*

¹⁴⁰ MVWD Ex. 3, p. 5.

¹⁴¹ MVWD Ex. 3, p. 6; Tr. 1203-1204; 6,791 afa constitutes an increase in the carbonate-rock aquifer pumping for MVWD. Tr. 1228.

¹⁴² MVWD Ex. 3, pp. 6-7; Tr. 1202-1203.

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Muddy Valley Irrigation Company

The MVIC is a non-profit Nevada corporation with the senior decreed water rights to the Muddy River, who provided testimony that SNWA is a majority shareholder while other participants such as CSI, LC-V, and MVWD are minority shareholders of the decreed rights.¹⁴³ MVIC concurred with SNWA's conclusions regarding aquifer recovery, long-term quantity of groundwater, and movement of water between the alluvial and the carbonate-rock aquifers.¹⁴⁴ Specifically, that any groundwater pumping, from both alluvial or carbonate-rock aquifers, within the Muddy River Springs Area impacts Muddy River flows, thus violating the Muddy River Decree.¹⁴⁵ MVIC did not dispute the geographic boundaries as identified in Interim Order 1303.¹⁴⁶ MVIC argued that the Muddy River and all of its sources are fully appropriated and emphasized the decreed seniority to groundwater rights, and further asserts that these surface water rights are protected by the Muddy River Decree and the prior appropriation doctrine.¹⁴⁷

United States Department of the Interior, National Park Service

NPS submitted both an initial and rebuttal report in response to the Interim Order 1303 solicitation and presented testimony during the hearing.¹⁴⁸ Based upon NPS's evaluation of the evidence relating to the Order 1169 aquifer test, the use of an updated numerical groundwater flow model previously developed to predict conditions within the LWRFS, data compiled since the conclusion of the Order 1169 aquifer test, and review of other available data, NPS came to multiple conclusions relating to the delineation and management of the LWRFS. NPS advocates for the

¹⁴³ Tr. 1693–1696, 1705.

¹⁴⁴ MVIC Ex. 1, *MVIC Rebuttal Report dated August 15, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVIC identified sections from the SNWA report, but the references do not correspond with sections in SNWA's report. The State Engineer assumes that these section numbers correspond to page numbers of the SNWA report; *See also*, SNWA Ex. 7, Burns, A., Drici, W., Collins, C., and Watrus, J., 2019, *Assessment of Lower White River Flow System water resource conditions and aquifer response, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹⁴⁵ MVIC Ex. 1, p. 5; Tr. 1698.

¹⁴⁶ *See* MVIC Ex. 1, p. 3; Tr. 1697–1698.

¹⁴⁷ *Muddy Valley Irrigation Company Post Hearing Closing Statement* (MVIC Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1967, 1700–1708. *See also*, NSE Ex. 333, *Muddy River Decree*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹⁴⁸ *See* NPS Ex. 2, *Prediction of the Effects of Changing the Spatial Distribution of Pumping in the Lower White River Flow System*, Waddell, July 3, 2019; Tr. 494–597.

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inclusion of the entirety of the Black Mountains Area within the geographic boundary of the LWRFS based upon its review of geologic conditions that facilitate flow from the southern portion of the LWRFS through the Muddy Mountains thrust sheet and discharging in Rogers Spring and Blue Point Spring.¹⁴⁹ Further supporting this opinion, NPS cites to spring chemistry and isotopic composition of the water discharging from Rogers Spring and Blue Point Spring and the hydraulic head conditions that NPS believes supports the flow of groundwater beneath the Muddy Mountains from the carbonate-rock aquifer to those springs.¹⁵⁰ NPS acknowledge that there is a weak hydraulic connection between Rogers Spring and Blue Point Spring to the LWRFS based upon the geologic conditions within the Muddy Mountains, but argues that the entirety of the Black Mountains Area should be included to allow for management of the regional carbonate-aquifer to protect against diminished discharge to those springs.¹⁵¹

In addition to advocating for the inclusion of the entirety of the Black Mountains Area, the NPS provided evidence and analysis to support its conclusion that Kane Springs Valley too should be included within the geographic boundary of the LWRFS.¹⁵² Based upon a review of the hydrologic data, geology of the Kane Springs Valley and basin boundaries, Coyote Spring Valley, and data from the Order 1169 aquifer test, NPS concludes that there is a clearly established hydrological connection between Kane Springs Valley and the other LWRFS basins, including discharge to the Warm Springs area.¹⁵³ While NPS advocates for the inclusion of the entire Black Mountains Area and Kane Springs Valley, it did not find any evidence to support the inclusion of the Las Vegas Valley within the LWRFS based upon a similar review of the geology and hydrological data.¹⁵⁴

In interpreting data since the conclusion of the Order 1169 aquifer test, NPS reviewed the available data, concluding that the decades long decline of groundwater levels is not attributable to climate, but rather that the groundwater pumping within the LWRFS is the contributing

¹⁴⁹ See NPS Ex. 2, p. 22. See also, Tr. 569–70; NPS, *Closing Statements Interim Order 1303 Hearing Testimony* (NPS Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2.

¹⁵⁰ NPS Ex. 2, p. 22; NPS Closing, pp. 2–4.

¹⁵¹ *Id.*

¹⁵² NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 4–5.

¹⁵³ NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 5–6.

¹⁵⁴ NPS Ex. 2, p. 22; Tr. 552–554.

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factor.¹⁵⁵ NPS opined that if recent pumping withdrawals continued, the current declining trend would be accelerated, adversely impacting spring discharge in the Warm Springs area and Muddy River flow.¹⁵⁶ Further, NPS's review of the data lead to its conclusion that it will take many years, if not decades for the LWRFS carbonate-rock aquifer to reach equilibrium, particularly at the current groundwater pumping withdrawals and even longer if pumping withdrawals occurred at Order 1169 aquifer test levels.¹⁵⁷ However, NPS did not provide an opinion as what rate of groundwater withdrawals would be sustainable within the LWRFS.

Finally, NPS concluded that the movement of groundwater withdrawals from the alluvial aquifer within the Muddy River Springs Area to the carbonate-rock aquifer within the LWRFS would ultimately have little impact on capture of Muddy River flow. Specifically, NPS found that while there may be near-term benefits to the Warm Springs area and Muddy River flow, those benefits would eventually disappear, as the impact would only be delayed and not eliminated.¹⁵⁸

Nevada Cogeneration Associates

NCA submitted a Rebuttal Report Pertaining to Interim Order 1303 and provided testimony at the Interim Order 1303 hearing.¹⁵⁹ NCA objected to the inclusion of certain non-profit organizations on the basis that those organizations were not stakeholders and did not have an interest to protect as the non-governmental organizations did not have water rights within the LWRFS basins effected by the proceedings.¹⁶⁰

With respect to the geographic boundary of the LWRFS, in its Rebuttal Report, NCA is of the opinion that the northwestern portion of the Black Mountains Area, as identified by the State Engineer, should be within the LWRFS basins, but expressed its disagreement with other opinions advocating for the inclusion of the entire Black Mountains Area based upon NCA's analysis of the geology and groundwater elevations.¹⁶¹ During the Interim Order 1303 hearing and in its Post-Hearing Brief, NCA's opinion shifted to advocate for the boundary of the LWRFS to be adjusted

¹⁵⁵ NPS Ex. 2, pp. 7, 22–23. *See also* NPS Closing, pp. 5–6.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ NPS Ex. 2, p. 23. *See also* NPS Closing, p. 6, and Tr. 593–594.

¹⁵⁹ NCA Ex. 1, *NCA Rebuttal Report Pertaining to Interim Order 1303 August 16, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1602–50.

¹⁶⁰ NCA Ex. 1, pp. 1, 23.

¹⁶¹ *Id.*, pp. 2, 23.

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to exclude its production wells in the Black Mountains Area; however, NCA did not alter its opinion regarding the remaining portion of the Black Mountains Area staying within the LWRFS.¹⁶²

NCA further expressed that the Lower Meadow Valley Wash should not be included in the LWRFS boundaries based upon the fact that observed groundwater levels do not indicate a hydrologic response to carbonate-rock aquifer pumping and that insufficient data supports a finding of continuity between water level trends to support its inclusion in the LWRFS.¹⁶³ However, NCA advocated for the inclusion of the Kane Springs Valley within the LWRFS based upon its opinion that the groundwater data demonstrated hydrologic connectivity between Coyote Spring Valley and Kane Springs Valley, acknowledging that the data is slightly attenuated resulting from the Kane Springs fault.¹⁶⁴ Ultimately, NCA concluded that Kane Springs Valley is tributary to the Coyote Spring Valley and the other LWRFS basins, which justify its inclusion within the boundary of the LWRFS.¹⁶⁵

Similarly, based upon the groundwater data from the northern portion of Coyote Spring Valley demonstrating similar water level responses as other wells throughout the LWRFS and pumping data demonstrating high hydrologic connectivity across all the LWRFS basins, NCA concluded that there was no basis to exclude the northern portion of Coyote Spring Valley.¹⁶⁶ Finally, NCA rejected a suggestion that the entirety of the White River Flow system, which extends into northeastern Nevada, be included within the management area.¹⁶⁷ Specifically, NCA concluded that the Pahrnagat Shear Zone creates a significant barrier to the northwestern portion of the LWRFS and that review of groundwater levels does not support a finding that groundwater level declines propagate into the northern reaches of the White River Flow System.¹⁶⁸ NCA concluded, advocating that proper management of the LWRFS is appropriate and sufficient for the

¹⁶² *Post-hearing brief of Nevada Cogeneration Associates Nos. 1 and 2 pertaining to Amended Notice of Hearing Interim Order #1303 following the hearing conducted September 23, 2019, through October 4, 2019, before the Nevada State Engineer (NCA Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2–10. See also Tr. 1619–22.*

¹⁶³ NCA Ex. 1 pp. 3–7, 23. *See also* NCA Closing, pp. 15–16.

¹⁶⁴ NCA Ex. 1, pp. 8–17, 23. *See also* NCA Closing, pp. 10–14, and Tr. 1629–44.

¹⁶⁵ NCA Ex. 1, pp. 11–16.

¹⁶⁶ *Id.*, pp. 17–18, 23.

¹⁶⁷ *Id.*, pp. 19, 24.

¹⁶⁸ *Id.*

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purpose of managing discharge of groundwater to the Warm Springs area to support habitat for the Moapa dace and serve senior Muddy River decreed rights.¹⁶⁹

In addressing the annual amount of groundwater that could be developed within the LWRFS without adversely impacting senior decreed rights on the Muddy River or Warm Springs area discharge supporting the habitat for the Moapa dace, NCA supported a target of 9,318 afa, a recent three-year average of annual pumping within the LWRFS,¹⁷⁰ as it did not believe there to be sufficient data to support either an increase or decrease from this amount.¹⁷¹ However, in its post-hearing brief, NCA opined that if their production wells located within the northwestern portion of the Black Mountains Area were excluded from the LWRFS boundary, then the annual amount of water that could be sustainably developed was less than the 9,318 afa.¹⁷²

Finally, NCA did not support movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer, as it was of the opinion that the movement of those rights would not mitigate impact to the Warm Springs area.¹⁷³ Rather, NCA concluded that movement of those rights would compound the impact of pumping from the carbonate-rock aquifer.¹⁷⁴ However, NCA did express some support for movement of senior alluvial water rights as a management tool to offset existing junior carbonate-rock aquifer pumping within the LWRFS.¹⁷⁵

NV Energy

NV Energy submitted a rebuttal report outlining its responses to the five matters the State Engineer solicited in Interim Order 1303 and presented its opinions and conclusions during the Interim Order 1303 hearing.¹⁷⁶ In its rebuttal report, NV Energy opined that the geographic boundary of the LWRFS should be as established in Interim Order 1303.¹⁷⁷ NV Energy further

¹⁶⁹ *Id.*

¹⁷⁰ NCA Ex. 1, p. 19. *See, e.g.* Draft order of the State Engineer distributed to LWRFS stakeholders at the LWRFS Working Group meeting, September 19, 2018, official records of the Division of Water Resources.

¹⁷¹ *Id.*, pp. 18, 24.

¹⁷² NCA Closing, pp. 14–15.

¹⁷³ NCA Ex. 1, pp. 19–23, 24.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ NVE Ex. 1, *NV Energy Rebuttal Report to State Engineer's Order 1303 Initial Reports by Respondents*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

¹⁷⁷ *Id.*, pp. 1–2.

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opined that the existence of subsurface outflow from Kane Springs Valley into the LWRFS basins was insufficient to support its inclusion.¹⁷⁸

NV Energy, in its rebuttal report, disagreed with MBOP's conclusion that the groundwater level declines observed during and after the Order 1169 aquifer test were primarily caused by drought. Rather, NV Energy agreed with SNWA's and MVWD's conclusions that the groundwater recovery occurred between 2–3 years following the conclusion of the aquifer test, but that continued pumping within the carbonate-rock aquifer has inhibited recovery to pre-Order 1169 aquifer test groundwater levels, and that at the current rate of carbonate-rock aquifer pumping the aquifer has nearly reached steady-state conditions and discharge to the Warm Springs area has reached equilibrium.¹⁷⁹

NV Energy further agreed in its rebuttal report with MBOP's and CNLV's conclusions that some groundwater flowing within the carbonate-rock aquifer bypassed the Muddy River Springs Area, and ultimately the Muddy River. NV Energy also agreed that groundwater development within the southern boundary of the LWRFS would likely have less of an effect on discharge to the Warm Springs area and the river. NV Energy did not opine as to the quantity of water that bypassed the springs, but inferred that the current 7,000–8,000 afy of carbonate-rock aquifer pumping appeared to support the conclusion that steady-state conditions had been reached.¹⁸⁰ NV Energy also opined that movement of senior certificated alluvial water rights in the Muddy River Springs Area to carbonate-rock aquifer wells located in the southern portion of the LWRFS may be considered acceptable as Nevada law allows for the reasonable lowering of the groundwater table, and such movement would not necessarily result in a conflict to existing rights.¹⁸¹ NV Energy further concluded that, contrary to the conclusions of MBOP, drought was not a significant cause for the groundwater level declines observed.¹⁸² Finally, NV Energy concluded with suggestions that the State Engineer either: (1) combine the LWRFS basins into a single hydrographic basin and declare the new basin to be a Critical Management Area pursuant to NRS 534.037 and 534.110; or, (2) for the State Engineer to, under his authority in NRS 534.020 and

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*, pp. 2–7.

¹⁸⁰ NVE Ex. 1, p. 8.

¹⁸¹ *Id.*, pp. 8–9; *Nevada Energy's Closing Statements* (NV Energy Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5.

¹⁸² *Id.*, pp. 9–12.

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534.120, require the water right holders within the LWRFS to develop a conjunctive management plan.¹⁸³

After considering all of the evidence and testimony presented at the Interim Order 1303 hearing, NV Energy ultimately altered its opinion and found compelling arguments to both support the inclusion of Kane Springs Valley in the LWRFS as well as its exclusion.¹⁸⁴ Ultimately, NV Energy changed its opinion with respect to the geographic boundary of the LWRFS and in its closing statement expressed support for the inclusion of Kane Springs Valley within the LWRFS boundary due to the connection with Coyote Spring Valley and thus the potential for impacts to LWRFS from pumping within Kane Springs Valley.¹⁸⁵ NV Energy proposes that the current pumping regime of 7,000 to 8,000 afy be maintained to evaluate the potential for steady-state conditions and the continued monitoring of the Warm Springs West gage and agrees that moving pumping further south may reduce impact to the Muddy River and springs. With regards to moving water between the alluvial and carbonate-rock aquifers, similar to others, NV Energy agrees with the evaluation of change applications on a case-by-case basis with demonstration that impacts are reduced or unchanged by the proposed point of diversion compared to the existing point of diversion. NV Energy supports an agreement that would include all water users within the LWRFS for the purposes of not exceeding stresses within system and protecting the Moapa dace.¹⁸⁶

Southern Nevada Water Authority and Las Vegas Valley Water District

The SNWA and LVVWD submitted multiple reports in response to the Interim Order 1303 solicitation.¹⁸⁷ SNWA and LVVWD supported the boundary of the LWRFS as identified in Interim Order 1303, and argued that there was a general consensus of the participants regarding the

¹⁸³ *Id.*, p. 12.

¹⁸⁴ Tr. 1761–1762.

¹⁸⁵ NV Energy Closing, pp. 2–3.

¹⁸⁶ *Id.*, pp. 3–6.

¹⁸⁷ SNWA Ex. 7; SNWA Ex. 8, *Marshall, Z.L., and Williams, R.D., 2019, Assessment of Moapa dace and other groundwater-dependent special status species in the Lower White River Flow System, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 9, *Burns, A., Drisci, W., and Marshall Z.L., 2019, Response to stakeholder reports submitted to the Nevada State Engineer with regards to Interim Order 1303, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

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boundaries based upon the hydraulic connectivity within the identified basins.¹⁸⁸ Further, SNWA and LVVWD argued against the exclusion of the northern and western portions of Coyote Spring Valley, that management of adjoining basins should be done in a manner recognizing an impact on pumping from those basins on water availability in the LWRFS basins, and that the Las Vegas Valley should be excluded from the LWRFS.¹⁸⁹

With respect to the evaluation of the carbonate-rock aquifer recovery since the conclusion of the Order 1169 aquifer test, SNWA and LVVWD concluded that the aquifer has not returned to pre-Order 1169 levels, and that the evidence demonstrates a continued declining trend within the carbonate-rock aquifer as a result of continued groundwater pumping.¹⁹⁰ SNWA and LVVWD concluded that the current pumping continues to capture groundwater storage and that based upon the current rate of groundwater withdrawals, water levels within the carbonate-rock aquifer will continue to decline for the foreseeable future.¹⁹¹ Further, SNWA and LVVWD rejected the premise that climate was a significant factor over groundwater withdrawals for the observed groundwater level decline.¹⁹²

Based upon a review of the evidence, SNWA and LVVWD concluded that current rate of groundwater withdrawals were not sustainable without adversely impacting senior Muddy River water rights and Moapa dace habitat.¹⁹³ Based upon the analysis performed by SNWA and LVVWD, examining the discharge from the Muddy River Springs Area and groundwater production within the carbonate-rock aquifer within the LWRFS, SNWA and LVVWD concluded that any groundwater development within the carbonate-rock aquifer resulted in a one-to-one (1:1) ratio of capture of Muddy River flow, and that regardless of where that pumping occurred, it still resulted in a 1:1 ratio of capture, only that the period of time that the capture was realized was longer.¹⁹⁴ Ultimately, SNWA and LVVWD concluded that while any amount of pumping results

¹⁸⁸ SNWA Ex. 7, pp. 5-1 through 5-18, 8-1. *See also*, Tr. 953.

¹⁸⁹ *Closing Brief of Southern Nevada Water Authority and Las Vegas Valley Water District* (SNWA Closing), pp. 4-9, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See also* SNWA Ex. 9 at sections 6, 7 and 12.

¹⁹⁰ SNWA Closing, pp. 9-12. *See also* SNWA Ex. 7, pp. 5-1 through 5-18, and SNWA Ex. 9, pp. 15-20.

¹⁹¹ SNWA Closing, pp. 11-12. *See also* Tr. 932.

¹⁹² SNWA Closing, pp. 12-14. *See also* SNWA Ex. 9, pp. 15-17.

¹⁹³ SNWA Ex. 7, pp. 6-3 through 6-4, 8-2 through 8-4.

¹⁹⁴ *Id.*, pp. 6-4 through 6-11, 8-2 through 8-4; SNWA Ex. 9, pp. 22-27.

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in a conflict with senior decreed Muddy River rights, approximately 4,000 to 6,000 afa could be sustainably pumped from the aquifer.¹⁹⁵ In conjunction with SNWA and LVVWD's evaluation of the quantity of water that may be sustainably developed within the LWRFS, SNWA and LVVWD reviewed the interrelationship between discharge from the carbonate-rock aquifer underlying the LWRFS, groundwater pumping and the impact on the habitat and recovery of the Moapa dace.¹⁹⁶ SNWA and LVVWD ultimately concluded that the flow required to sustain the Moapa dace from adverse effects, including habitat loss and fish population declines was a minimum 3.2 cfs at the Warm Springs West gage.¹⁹⁷

Finally, it was SNWA and LVVWD's opinion that movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer within the LWRFS may delay the capture of water serving senior decreed rights on the Muddy River, but that movement of water from the alluvial aquifer to the carbonate-rock aquifer would adversely impact the habitat of the Moapa dace.¹⁹⁸ Thus, SNWA and LVVWD concluded transfer of water rights from the Muddy River Springs Area alluvial aquifer to the LWRFS carbonate-rock aquifer would result in further depletion of flow to the Warm Springs area.¹⁹⁹

Technichrome

Technichrome submitted a response and additional response to the Interim Order in July 2019 but did not participate in the hearing.²⁰⁰ Technichrome stated that it had no objection to a "joint administrative basin" consisting of Coyote Spring Valley, Black Mountain Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley, expressed no comment regarding the inclusion of Kane Springs Valley, but questioned whether the entirety of the White River Flow System should be included in the State Engineer's analysis.²⁰¹ However,

¹⁹⁵ Tr. 921-22. *See also* SNWA Ex. 7, pp. 8-1 through 8-5; SNWA Ex. 9, p. 27.

¹⁹⁶ *See* SNWA Ex. 8.

¹⁹⁷ *Id.*, pp. 8-1 through 8-2. *See also* SNWA Closing, pp. 17-19.

¹⁹⁸ *See* SNWA Closing, pp. 19-20. *See also* SNWA Ex. 7, pp. 6-3 through 6-11, 8-4; SNWA Ex. 9, pp. 21-22.

¹⁹⁹ SNWA Closing, p. 20. *See also* Tr. 904-05.

²⁰⁰ *Response to Interim Order #1303 Submitted [sic] by Technichrome* (Technichrome Response), Hearing on Interim Order 1303, official records of the Division of Water Resources, and *Additional Comments from Technichrome* (Technichrome Addendum), Hearing on Interim Order 1303, official records of the Division of Water Resources.

²⁰¹ Technichrome Response, pp. 1-3.

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Technichrome did note that it believed that combining all water rights into a single management structure reduced the State Engineer's ability to control groundwater withdrawals. Technichrome stated that it believed that the State Engineer should have the ability to control withdrawals in small areas to best manage the discharge to the Warm Springs area, and that more targeted control over the groundwater withdrawals would be more effective in managing the discharge.²⁰² Technichrome supported this opinion with some analysis of the results of the Order 1169 aquifer test and its opinion that pumping farther from the Warm Springs area had little to no impact on discharge to Pederson Spring.²⁰³

In Technichrome's additional comments, Technichrome addressed concerns regarding the injury that would result from a system-wide reduction of groundwater rights throughout the LWRFS.²⁰⁴ Finally, Technichrome addressed concerns regarding reliance on the priority system, as utilization of the prior appropriation system would benefit senior irrigation uses over the junior industrial uses, and that removal of basin boundaries would remove limitations on movement of water rights between the existing hydrographic basins, which would disrupt junior uses in areas where senior rights may be moved.²⁰⁵

U.S. Fish and Wildlife Service

USFWS holds several water rights within the LWRFS and its mission is consistent with the scientific and management aspects of the LWRFS and the management area as established in Interim Order 1303.²⁰⁶ USFWS opted to participate in the proceeding by submitting initial and rebuttal reports and providing testimony during the administrative hearing.²⁰⁷ The approach of

²⁰² *Id.*

²⁰³ *Id.*, and Technichrome Addendum.

²⁰⁴ Technichrome Addendum.

²⁰⁵ *Id.*

²⁰⁶ The USFWS' mission is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. *See also*, USFWS, *About the U.S. Fish and Wildlife Service*, <https://bit.ly/aboutusfws> (last accessed June 4, 2020).

²⁰⁷ USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources; USFWS Ex. 7, *Rebuttal to: Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development by Cady Johnson and Martin Mifflin [sic], Mifflin & Associates, Inc., submitted by the Moapa Band of Paiutes in accordance with Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

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USFWS was to review available data, develop a hydrogeologic conceptual model, and answer the specific questions posed in Interim Order 1303.

USFWS proposed that the boundary be based on geologic breaks rather than the surface drainage areas. The boundary would then encompass all Muddy River Springs Area, Hidden Valley, Garnet Valley, most of Coyote Spring Valley, most of California Wash, the northwest portion of the Black Mountains area, Kane Springs Valley, and most of Lower Meadow Valley Wash. The extent to which Kane Springs Valley and Lower Meadow Valley Wash are included would depend on the data from an aquifer test that has not yet been performed.²⁰⁸

Although, USFWS did not directly opine their view on recovery, their report discusses a conceptual model with insight into lag times and hydraulic connections, and how current conditions relate to sustainable pumping. An “undiminished state of decline” in water levels and spring flows indicated that the system was not in equilibrium at the end of the Order 1169 aquifer test. USFWS postulated there was generally good connectivity within the aquifer system with areas of higher and lower transmittivity. Trends in water levels and spring flows allude to the connection between high elevation springs and carbonate-rock aquifer pumping, with a time lag observed in the recovery of carbonate-rock aquifer water levels and spring flows following the cessation of the Order 1169 aquifer test. The exception is Big Muddy Spring where surface water level trends appeared to be unrelated to the carbonate-rock aquifer water levels.²⁰⁹

USFWS determined that the optimum method currently available to estimate the maximum allowable rate of pumping in the LWRFS is the average annual rate of pumping from 2015–2017.²¹⁰ USFWS considered the period from 2015 to 2017 because it found that the groundwater withdrawals, the discharge of the Muddy River Springs, and the flow of the Muddy River were all relatively constant; flow rates from Plummer, Pederson, Jones and Baldwin springs, though generally lower than before the Order 1169 aquifer test, were reasonably stable compared to earlier

²⁰⁸ See USFWS Ex. 5, pp. 2, 28–36.

²⁰⁹ USFWS Ex. 5, pp. 3, 32–33, 35, 37–45; Tr. 266–270, 273–281, 299–301, 433–435.

²¹⁰ USFWS Ex. 5, p. 3.

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periods.²¹¹ Using the pumpage inventories for this time period, USFWS estimated the sustainable groundwater withdrawals to be 9,318 afa.²¹²

Even if total carbonate-rock and alluvial aquifer pumping is maintained at a "sustainable" overall level, USFWS did not support increased carbonated-rock aquifer pumping in exchange for reductions in alluvial aquifer pumping, nor did USFWS support increased alluvial aquifer pumping in exchange for reductions in carbonate-rock aquifer pumping. USFWS suggested that carbonate-rock aquifer pumping should not be moved closer to the springs or the river. Similarly, USFWS suggests that alluvial aquifer pumping in the vicinity of the river should not be moved closer to the river. USFWS opines that any movement of water nearer to the springs or the river is anticipated to decrease the lag time for observing responses from pumping and shorten the time to respond to unfavorable impacts.²¹³

Moving forward with management of the LWRFS, USFWS supported the use of the triggers at the Warm Springs West gage, as established under the 2006 MOA. Continuing to use these Warm Springs West flows as a trigger for management will protect and provide habitat for the Moapa dace; a reduction in the flow translates to a reduction in habitat.²¹⁴

USFWS did not deny that water levels were independent of a climate response signal. Using observed data for Nevada Climate Divisions, USFWS visually inspected hydrographs for climate signals. USFWS opined that response to wet periods are observed for wells in both the carbonate-rock and alluvial aquifers and springs that discharge from the carbonate-rock aquifer but stated that response to dry periods cannot be separated from the impacts of pumping. USFWS did not observe these same climate signals in the hydrographs for Jones and Baldwin Springs or the Big Muddy Spring. USFWS disagreed with the conclusion of the MBOP regarding long-term, regional drought, as well as the analytical methods.²¹⁵

²¹¹ USFWS Ex. 5, pp. 3, 37; Tr. 269–270, 433–435.

²¹² USFWS Ex. 5, pp. 3, 36–38; Tr. 268–270.

²¹³ See USFWS Ex. 5, pp. 3–4, 38–39; Tr. 272–273.

²¹⁴ See USFWS Ex. 5, pp. 4, 39–45; Tr. 273–282; See also, NSE Ex. 256; NSE Ex. 244, 2006 Memorandum of Agreement Trigger Levels agreed to by the Southern Nevada Water Authority, Moapa Valley Water District, Coyotes Springs Investments LLC and Moapa Band of Paiute Indians, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²¹⁵ See USFWS Ex. 5, pp. 24–28, 34–35; See USFWS Ex. 7, pp. 2–16; Tr. 258–260, 299–322, 429–432.

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Western Elite Environmental/Bedroc

Bedroc is the land holding and water-right holding entity for Western Elite Environmental, Inc., a provider of construction and recyclable waste collection and disposal in Southern Nevada.²¹⁶ Bedroc submitted an undated rebuttal report signed by Derek Muaina, General Counsel, and a closing statement.²¹⁷ Bedroc presented Jay Dixon as its expert to give a presentation and to discuss the rebuttal report.²¹⁸ Mr. Dixon stated that he contributed to the report, and that he agreed with it, but he did not sign the report because he was working for another participant in the hearing (NCA).²¹⁹ Mr. Dixon did provide testimony consistent with the report, and adopted the findings of that report, and both the testimony and the report will be considered in this Order.²²⁰

Bedroc presented testimony and evidence that its source of groundwater is hydraulically disconnected from the regional carbonate aquifer of the LWRFS and that additional groundwater may be available for pumping in their part of Coyote Spring Valley. Bedroc also argued that its basin fill alluvial groundwater pumping should be managed outside of the proposed LWRFS joint administrative unit.²²¹

To show the hydraulic disconnect, Bedroc presented geologic information demonstrating its unique location.²²² Bedroc showed that a confining shelf of sedimentary rock was noticeably absent in the vicinity of the Bedroc site where recharge from the Sheep Range rises toward the surface between two faults, which results in shallow groundwater that is subject to ET and capture from shallow groundwater wells at the Bedroc site.²²³ Recharge from the Sheep Range was estimated to be 750 afy, an average of the high and low estimates of the maximum recharge

²¹⁶ Bedroc Ex. 2, *Interim Order 1303- Rebuttal Report- Prepared by Bedroc and Dixon Hydrologic, PLLC- August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²¹⁷ Bedroc Ex. 2; *Western Elite Environmental Inc.'s and Bedroc Limited, LLC's Closing Statement* (Bedroc Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

²¹⁸ See Tr. 1718–1719.

²¹⁹ Tr. 1719, 1741.

²²⁰ Tr. 1718–1757, 1749–1750.

²²¹ Bedroc Closing, pp. 13–14. Bedroc offered summary responses to the first four questions posed by Order 1303 but did no independent analysis. See Bedroc Closing, p. 12.

²²² Bedroc Closing, p. 2.

²²³ *Id.*; Tr. 1726–1733.

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available.²²⁴ SNWA challenged this calculation, pointing out that the estimated recharge could be as low as 130 acre-feet.²²⁵

Bedroc believes that it is capturing the recharge that would otherwise be lost to evapotranspiration.²²⁶ Groundwater conditions at Bedroc's site show a rise in water levels between 2003 and 2006.²²⁷ Bedroc attributed this rise in part to the installation of an unlined storage pond upgradient from the well, but also to the 2005 recharge event that was discussed by many participants to the proceeding.²²⁸ Between 2006 and 2011, Bedroc showed that groundwater levels had been relatively stable even though pumping by Bedroc was fairly constant.²²⁹ Bedroc showed photo evidence of evapotranspiration occurring around the Bedroc site, pointing to areas of white surface soils and green occurring in the photo as evidence of salt residue and phreatophytes, both occurring as a result of shallow groundwater evaporation.²³⁰ The area is estimated to be about 2,200 acres, and the ET range is estimated to be 0.2 to 0.3 feet per year.²³¹ This results in an estimate of 400 to 600 afa of groundwater that potentially could be captured every year without pulling groundwater from storage.²³² If pumping in this area exceeded ET, water levels to the east of Bedroc would be dropping.²³³

Bedroc considered the alluvial system at its location to be a separate aquifer from the carbonate-rock aquifer in the LWRFS.²³⁴ CBD in its report also supports this conclusion, suggesting that some groundwater can be withdrawn from the Coyote Spring Valley alluvial aquifer system because that system is disconnected from and not responsible for substantial recharge to the carbonate-rock aquifer.²³⁵ SNWA testified similarly during the hearing.²³⁶

²²⁴ Tr. 1724–1725, 1755.

²²⁵ Tr. 1755.

²²⁶ Bedroc Closing, pp. 5–9.

²²⁷ Tr. 1735.

²²⁸ *Id.*

²²⁹ Tr. 1735–1736.

²³⁰ Tr. 1734, 1738.

²³¹ Tr. 1739.

²³² Tr. 1739.

²³³ Tr. 1739. *See also* Bedroc Closing, p. 8.

²³⁴ Tr. 1746.

²³⁵ Bedroc Ex. 2, p. 5.

²³⁶ Tr. 1024.

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Relying on a lack of connection between pumping at Bedroc and the carbonate-rock aquifer, Bedroc asserted that there is no likely impact to the Warm Springs area caused by Bedroc.²³⁷ Bedroc compared groundwater elevations over time in two alluvial wells, CSV-3009M and CSV-7, and showed an upward trend in groundwater elevations.²³⁸ But, when comparing groundwater elevations of two monitoring wells in different sources, CSV-7 in the alluvium and CSV-4 in the carbonate-rock aquifers, the carbonate-rock aquifer well elevations showed a decline during the Order 1169 aquifer test, but the alluvial well elevation rose during the same period and leveled off after the conclusion of the test.²³⁹ Bedroc concluded that these data illustrate 1) the hydraulic disconnect between the local alluvial aquifer and carbonate-rock aquifer and 2) if historical alluvial pumping at Bedroc has not impacted water levels in nearby alluvial wells, then there is likely no impact to spring or streamflow in the Muddy River Springs Area.

Finally, Bedroc stated that managing all users in the region under the same system would arbitrarily impact users whose water neither comes from the regional carbonate-rock aquifer system nor impacts the springs of concern downstream.²⁴⁰ It urged caution in allowing transfer of water rights between alluvial and carbonate-rock aquifers due to potential impacts on senior users that are using local recharge that may not sustain pumping from additional users.²⁴¹ Transfers of senior alluvial rights from the Muddy River Springs Area to the area near Bedroc should be considered on a case-by-case basis to protect Bedroc's senior water rights.²⁴²

III. PUBLIC COMMENT

WHEREAS, following the conclusion of the Interim Order 1303 hearing, opportunity for public comment was offered, including the opportunity to submit written public comment, which was due to be submitted to the Division no later than December 3, 2019. Lincoln County Board of

²³⁷ Bedroc Closing, p.11. *See also* SNWA testimony of Andrew Burns that pumping at Bedroc wells is not likely to impact the carbonate system or the Muddy River. Tr. 1024–1025.

²³⁸ Bedroc Closing, p. 12. *See also* Tr. 1736–1737, 1752.

²³⁹ Tr. 1737–1738.

²⁴⁰ Bedroc Ex. 2, pp. 2–4.

²⁴¹ *Id.*, p. 6.

²⁴² Tr. 1740.

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County Commissioners submitted written public comment in addition to the closing argument submitted by LC-V.²⁴³

IV. AUTHORITY AND NECESSITY

WHEREAS, NRS 533.024(1)(c) directs the State Engineer “to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada.”

WHEREAS, in 2017 the Nevada Legislature added NRS 533.024(1)(e), declaring the policy of the State to “manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water.”

WHEREAS, NRS 534.020 provides that all waters of the State belong to the public and are subject to all existing rights.

WHEREAS, as demonstrated by the results of the Order 1169 aquifer test and in the data collected in the years since the conclusion of the aquifer test, the LWRFS exhibits a direct hydraulic connection that demonstrates that conjunctive management and joint administration of these groundwater basins is necessary and supported by the best available science.²⁴⁴

WHEREAS, the pre-development discharge of 34,000 acre-feet of the fully appropriated Muddy River system plus the more than 38,000 acre-feet of groundwater appropriations within the LWRFS greatly exceed the total water budget that may be developed without impairment of senior existing rights or proving detrimental to the public interest.

WHEREAS, the available groundwater supply within the LWRFS that can be continually pumped over the long-term is limited to the amount that may be developed without impairing existing senior rights, rights on the Muddy River or adversely affecting the public interest in

²⁴³ See Board of County Commissioners, Lincoln County, Nevada, *Public Comment to Interim Order #1303 Hearing, Reports, and Evidence on the Lower White River Flow System*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²⁴⁴ See, e.g., NSE Ex. 245; NSE Ex. 248; NSE Ex. 256; NSE Ex. 252; NSE Ex. 282, *Federal Bureaus Order 1169 Report Selected References: Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the Endo of the Order 1169 Test, and Prediction of the Rates of Recovery from the Test*, TetraTech, 2013, Hearing on Interim Order 1303, official records of the Division of Water Resources. See also, e.g., CBD Ex. 3; MVWD Exs. 3–4; MVIC Ex. 1; NCA Ex. 1, SNWA Exs. 7–9; USFWS Exs. 5–6; NPS Exs. 2–3.

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protection of the endangered Moapa dace and the habitat necessary to support the management and recovery of the Moapa dace.

WHEREAS, pursuant to NRS 532.120, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.

WHEREAS, pursuant to NRS 534.110(6) the State Engineer is directed to conduct investigations in groundwater basins where it appears that the average annual replenishment of the groundwater is insufficient to meet the needs of all water right holders, and if there is such a finding, the State Engineer may restrict withdrawals to conform to priority rights.

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, and specifically, NRS 534.120, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.²⁴⁵

WHEREAS, the State Engineer has the authority to hold a hearing to take evidence and the interpretation of the evidence with respect to its responsibility to manage Nevada's water resources and to allow willing participants to present evidence and testimony regarding the conclusions relating to the questions presented in Interim Order 1303. The State Engineer recognizes that the MBOP is a federally recognized tribe, and that its participation in the hearing was to facilitate the understanding of the interpretation of data with respect to the Interim Order 1303 solicitation.

V. ENDANGERED SPECIES ACT

WHEREAS, the Endangered Species Act (ESA), 16 U.S.C. §1531 et seq. is a federal law designed to serve the purpose of identifying, conserving and ultimately recovering species declining toward extinction.²⁴⁶ Specifically, while the ESA is primarily a conservation program, a critical element of the conservation component seeks to encourage cooperation and coordination

²⁴⁵ See also NRS 534.030, NRS 534.110.

²⁴⁶ 16 U.S.C. § 1531(a)–(b).

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with state and local agencies.²⁴⁷ The responsibility of enforcement and management under the ESA rests predominately with the federal government; however, the ultimate responsibility is shared.²⁴⁸

WHEREAS, the ESA makes it unlawful for any person to “take” an endangered species — or to attempt to commit, solicit another to commit, or cause to be committed, a taking.²⁴⁹ The term “person” is broadly defined to include the State and its instrumentalities.²⁵⁰ “Take” encompasses actions that “harass, harm” or otherwise disturb listed species, including indirect actions that result in a take.²⁵¹ For example, a state regulator is not exempted from the ESA for takings that occur as a result of a licensee’s regulated activity. States have been faced with the impediment of their administrative management actions being subservient to the ESA. For example, the Massachusetts Division of Marine Fisheries was subject to an injunction prohibiting it from issuing commercial fishing licenses because doing so would likely lead to the taking of an endangered species.²⁵² In *Strahan v. Coxe*, the court’s decision relied on reading two provisions of the ESA— the definition of the prohibited activity of a “taking” and the causation by a third party of a taking— “to apply to acts by third parties that allow or authorize acts that exact a taking and that, but for the permitting process, could not take place.”²⁵³ Although Massachusetts was not the one directly causing the harm to the endangered species, the court upheld the injunction because “a governmental third party pursuant to whose authority an actor directly exacts a taking of an endangered species may be deemed to have violated the provisions of the ESA.”²⁵⁴ At least three other circuits have held similarly.²⁵⁵ In each case, “the regulatory entity purports to make lawful an activity that allegedly violates the ESA.”²⁵⁶ Thus the action of granting the permit for the regulated activity has been considered an indirect cause of a prohibited taking under the ESA.

²⁴⁷ 16 U.S.C. § 1531(c); 16 U.S.C. § 1536.

²⁴⁸ 16 U.S.C.A. § 1536.

²⁴⁹ 16 U.S.C.A. § 1538(g).

²⁵⁰ 16 U.S.C.A. § 1532(13).

²⁵¹ 16 U.S.C.A. § 1532(19). The term “harm” is defined by regulation, 50 C.F.R. § 17.3 (1999).

²⁵² *Strahan v. Coxe*, 127 F.3d 155 (1st Cir.1997), *cert denied* 525 U.S. 830 (1998).

²⁵³ *Id.*, p. 163.

²⁵⁴ *Id.*

²⁵⁵ See *Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir.1991); *Defenders of Wildlife v. EPA*, 882 F.2d 1294 (8th Cir. 1989); *Loggerhead Turtle v. County Council*, 148 F.3d 1231 (11th Cir.1998); *Palila v. Hawaii Dept. of Land & Natural Resources*, 852 F.2d 1106 (9th Cir.1988).

²⁵⁶ *Loggerhead Turtle*, 148 F.3d at 1251.

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WHEREAS, the use of water in Nevada is a regulated activity.²⁵⁷ It is the responsibility of the State to manage the appropriation, use and administration of all waters of the state.²⁵⁸ Based on *Strahan* and similar decisions, the act of issuing a permit to withdraw groundwater that reduces the flow of the springs that form the habitat of the Moapa dace and were to result in harm to the Moapa dace exposes the Division, the State Engineer and the State of Nevada to liability under the ESA.

WHEREAS, a USFWS biological opinion for the MOA found that the reduction in spring flow from the warm springs could impact the dace population in multiple ways. First, the USFWS found that declines in groundwater levels will reduce the flow to the Warm Springs area and allow for cooler groundwater seepage into streams. With reduced spring flow, Moapa dace habitat is reduced.²⁵⁹ Additionally, USFWS determined that the reduced flows of warm water from the springs will also result in cooler water available throughout the dace habitat, reducing spawning habitat and resulting in a population decline.²⁶⁰

WHEREAS, based upon the testimony and evidence offered in response to Interim Order 1303, it is clear that it is necessary for spring flow measured at the Warm Springs West gage to flow at a minimum rate of 3.2 cfs in order to maintain habitat for the Moapa dace.²⁶¹ A reduction of flow below this rate may result in a decline in the dace population. This minimum flow rate is not necessarily sufficient to support the rehabilitation of the Moapa dace.²⁶²

²⁵⁷ NRS 533.030; 533.325; 534.020.

²⁵⁸ NRS 533.325; 533.024(1)(e); 534.020.

²⁵⁹ USFWS Ex. 5, pp. 50–52.

²⁶⁰ SNWA Ex. 8, pp. 6-2 through 6-3; SNWA Ex. 40, *Hatten, J.R., Batt, T.R., Scoppettone, G.G., and Dixon, C.J., 2013, An ecohydraulic model to identify and monitor Moapa dace habitat. PLoS ONE 8(2):e55551, doi:10.1371/journal.pone.0055551.*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 41, *U.S. Fish and Wildlife Service, 2006a, Intra-service programmatic biological opinion for the proposed Muddy River Memorandum of Agreement regarding the groundwater withdrawal of 16,100 acre-feet per year from the regional carbonate aquifer in Coyote Spring Valley and California Wash basins, and establish conservation measures for the Moapa Dace, Clark County, Nevada. File No. 1-5-05 FW-536, January 30, 2006.*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²⁶¹ Tr. 1127–1128.

²⁶² Tr. 401–402, 1147, 1157–1158.

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WHEREAS, the ESA prohibits any loss of Moapa dace resulting from actions that would impair habitat necessary for its survival. Some groundwater users are signatories to an MOA that authorizes incidental take of the Moapa dace; however, the State Engineer and many other groundwater users are not covered by the terms of the MOA.²⁶³ Not only would liability under the ESA for a “take” extend to groundwater users within the LWRFS, but would so extend to the State of Nevada through the Division as the government agency responsible for permitting water use.

WHEREAS, the State Engineer concludes that it is against the public interest to allow groundwater pumping from the LWRFS that will reduce spring flow in the Warm Springs area to a level that would impair habitat necessary for the survival of the Moapa dace and could result in take of the endangered species.

VI. GEOGRAPHIC BOUNDARY OF THE LWRFS

WHEREAS, the geographic boundary of the hydrologically connected groundwater and surface water systems comprising the LWRFS, as presented in Interim Order 1303, encompasses the area that includes Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area.²⁶⁴ The rationale for incorporating these areas into a single administrative unit included the presence of a distinct regional carbonate-rock aquifer that underlies and uniquely connects these areas; the remarkably flat potentiometric surface observed within the area; the diagnostic groundwater level hydrographic pattern exhibited by monitoring wells distributed across the area; and the area-wide diagnostic water level response to pumping during the Order 1169 aquifer test. Each of these characteristics were previously identified and examined in the hydrological studies and subsequent hearing that followed the completion of the Order 1169 aquifer test. Indeed, these characteristics were the foundational basis for the State Engineer’s determination in Rulings 6254–6261 that the

²⁶³ NSE Ex. 236; SNWA Ex. 8, pp. 5-1 through 5-8.

²⁶⁴ See NSE Ex. 1, p. 6.

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close hydrologic connection²⁶⁵ and shared source and supply of water in the LWRFS required joint management.²⁶⁶

WHEREAS, evidence and testimony presented during the Interim Order 1303 hearing indicated a majority consensus among stakeholder participants that this originally defined area is appropriately combined into a single unit.²⁶⁷ Evidence and testimony was also presented on whether to add adjacent basins, or parts of basins to the administrative unit; to modify boundaries within the existing administrative unit; or to eliminate the common administrative unit boundaries. The State Engineer has considered this evidence and testimony on the basis of a common set of criteria that are consistent with the original characteristics considered critical in demonstrating a close hydrologic connection requiring joint management in Rulings 6254–6261 and more specifically, include the following:

1) Water level observations whose spatial distribution indicates a relatively uniform or flat potentiometric surface are consistent with a close hydrologic connection.

²⁶⁵ The State Engineer notes that the terminology “*hydrologic* connection” and “*hydraulic* connection” have been used by different parties sometimes interchangeably, and commonly with nearly the same meaning. The State Engineer considers a hydraulic connection to be intrinsically tied to the behavior and movement of water. With regard to aquifers, it may be thought of as the natural or induced movement of water through permeable geologic material. The degree of hydraulic connection can be considered a measure of the interconnection between locations as defined by a cause and effect change in potentiometric surface or a change in groundwater inflow or outflow that reflects characteristics of both the aquifer material and geometry, and groundwater behavior. It is commonly characterized by a response that is transmitted through the aquifer via changes in hydraulic head, i.e., groundwater levels. Hydrologic connections may include hydraulic connections but can also represent more complex system interactions that can encompass all parts of the water cycle, and in some cases may focus on flow paths, water budgets, geochemical interactions, etc. The State Engineer’s use of the term “*close* hydrological connection” is intended to encompass and include a direct hydraulic connection that is reflected in changes in groundwater levels in response to pumping or other fluxes into or out of the aquifer system within a matter of days, months, or years. The closeness, strength, or directness of the response is indicated by timing, with more distinct and more immediate responses being more “close”.

²⁶⁶ See NSE Ex. 14, p. 12, 24.

²⁶⁷ See Participant testimony from SNWA (Tr. 875–876), CNLV (Tr. 1418), and CSI (Tr. 95–96). Several other participants agreed, too, that the State Engineer’s delineation of the LWRFS as defined in Interim Order 1303 was acceptable. See also Bedroc Closing, p. 12, Church Closing, p. 1; Technichrome Response, p. 1. Other participants recommended larger areas be included within the LWRFS boundary. See Tr. 261–266 (USFWS), 1571–1572 (CBD), 1697–1698 (MVIC). See also NV Energy Closing, pp. 2–3; NPS Closing pp. 2–5.

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2) Water level hydrographs that, in well-to-well comparisons, demonstrate a similar temporal pattern, irrespective of whether the pattern is caused by climate, pumping, or other dynamic is consistent with a close hydrologic connection.

3) Water level hydrographs that demonstrate an observable increase in drawdown that corresponds to an increase in pumping and an observable decrease in drawdown, or a recovery, that corresponds to a decrease in pumping, are consistent with a direct hydraulic connection and close hydrologic connection to the pumping location(s).

4) Water level observations that demonstrate a relatively steep hydraulic gradient are consistent with a poor hydraulic connection and a potential boundary.

5) Geological structures that have caused a juxtaposition of the carbonate-rock aquifer with low permeability bedrock are consistent with a boundary.

6) When hydrogeologic information indicate a close hydraulic connection (based on criteria 1-5), but limited, poor quality, or low resolution water level data obfuscate a determination of the extent of that connection, a boundary should be established such that it extends out to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or in the absence of that, to the basin boundary.

WHEREAS, some testimony was presented advocating to include additional areas to the LWRFS based principally on water budget considerations and/or common groundwater flow pathways.²⁶⁸ Indeed, some participants advocate to include the entire White River Flow System, or other basins whose water may ultimately flow into or flow out of the system.²⁶⁹ Other participants used, but did not rely on, water budget and groundwater flow path considerations to support their analysis. Like those participants, the State Engineer agrees that while water budget and groundwater flow path analysis are useful to demonstrate a hydrologic connection, additional information is required to demonstrate the relative strength of that connection. Thus, the State

²⁶⁸ See e.g., CNLV Ex. 3, p. 33, Tr. 1430; NPS Closing, p. 2. See also Tr. 253–257; Sue Braumiller, *Interpretations of available Geologic and Hydrologic Data Leading to Responses to Questions Posed by the State Engineer in Order 1303 regarding Conjunctive Management of the Lower White River Flow System* (USFWS Braumiller presentation), slide 11, Item 6., bullet 1, official records of the Division of Water Resources; MBOP Ex. 2, p. 11.

²⁶⁹ See e.g., GBWN Report, pp. 1–2.

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Engineer recognizes that while any hydrologic connection, weak or strong, needs to be considered in any management approach, many of the connections advocated based principally on a water budget or flow path analysis, including those between nearby basins like Las Vegas Valley and Lower Meadow Valley Wash, are not demonstrated to provide for the uniquely close hydraulic connection that require joint management.

WHEREAS, in their closing statement, NPS proposes that all adjacent hydrographic areas to the original Interim Order 1303 administrative unit where a hydraulic interconnection exists, whether weak or strong, be included in the LWRFS.²⁷⁰ It does so to alleviate the need for developing new management schemes for the excluded remnants and to provide for appropriate management approaches based on new information and improved understanding of differing degrees of hydraulic interconnection in various sub-basins. The State Engineer agrees with this logic, up to a point, and has applied these concepts to the extent practical as demonstrated in his criteria for determining the extent of the LWRFS. However, the State Engineer also finds that there must be reasonable and technically defensible limits to the geographic boundary. Otherwise, if management were to be based on the entire spectrum of weak to strong hydraulic interconnection, then exclusion of an area from the LWRFS would require absolute isolation from the LWRFS; every sub-basin would have its own management scheme based on some measure of its degree of connectedness; and proper joint management would be intractable.

WHEREAS, evidence and testimony was also presented by the NPS regarding the specific inclusion of the entirety of the Black Mountains Area in the LWRFS.²⁷¹ The State Engineer recognizes that there may be a hydrologic connection between the Black Mountains Area and upgradient basins that are sources of inflow, and that outflow from the LWRFS carbonate-rock aquifer may contribute to discharge from Rogers and Blue Point Springs. However, the State Engineer does not find that this supports inclusion of the entirety of the Black Mountains Area. This determination is made based on the lack of contiguity of the carbonate-rock aquifer into this

²⁷⁰ NPS Closing, pp. 3–5.

²⁷¹ NPS Closing pp. 3–4. *See also* Tr.534, 555–569; Richard K. Waddell, Jr., *Testimony of Richard K. Waddell on behalf of the National Park Service*, presentation during hearing for Interim Order 1303 (NPS Presentation), slides 32–46, official records of the Division of Water Resources.

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area,²⁷² the difference in observed water level elevations compared to those in adjacent carbonate-rock aquifer wells to the north and west,²⁷³ and the absence of observed diagnostic hydrographic patterns and responses that define the uniquely close hydraulic connection that characterizes the LWRFS.²⁷⁴

WHEREAS, evidence and testimony presented by USFWS relied principally on SeriesSEE analysis of water level responses submitted by the Department of Interior Bureaus following the Order 1169 aquifer test to establish the general extent of the LWRFS. This was supported by the application of hydrogeology and principles of groundwater flow to define specific boundary limits to the LWRFS. It proposed that most of the Lower Meadow Valley Wash be considered for inclusion in the LWRFS based on the potential geologic continuity between carbonate rocks underlying the Lower Meadow Valley Wash and the carbonate-rock aquifer underlying Coyote Spring Valley, the Muddy River Springs Area, and California Wash.²⁷⁵ Additionally, it asserted that the alluvial aquifer system in Lower Meadow Valley Wash contributes to and is connected to both the Muddy River and the alluvial aquifer system in California Wash. The State Engineer finds that while carbonate rocks may underlie the Lower Meadow Valley Wash and be contiguous with carbonate rocks to the south and west, data are lacking to characterize the potential hydraulic connection that may exist. Regarding the hydraulic connection between the Lower Meadow Valley Wash alluvial aquifer and the LWRFS, the State Engineer agrees with USFWS that a connection exists, but finds that any impacts related to water development in the Lower Meadow Valley Wash alluvial aquifer are localized, and unrelated to the carbonate-rock aquifer, and can be appropriately managed outside the LWRFS joint management process.

WHEREAS, NCA advocated for the exclusion of the portion of the Black Mountains Area from the LWRFS that contains their individual production wells. NCA premise this primarily on testimony and analysis performed by SNWA with respect to the impact of pumping from this area

²⁷² See CSI Ex. 14, Plate 2, Map and Plate 4, Cross section K-K', in Peter D. Rowley et. al., *Geology and Geophysics of White Pine and Lincoln Counties, Nevada and Adjacent Parts of Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems*, Nevada Bureau of Mines and Geology Report 56.

²⁷³ See, e.g., USFWS Ex. 5, p. 30.

²⁷⁴ *Id.*, p. 17.

²⁷⁵ *Id.*, pp. 19-24.

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on discharge to the Warm Springs area.²⁷⁶ It also used hydrogeologic and water level response information to conclude that strike-slip faulting and a weak statistical correlation between water levels at NCA well EBM-3 and EH-4 in the Warm Springs area support a boundary to the north of the NCA production wells. While the State Engineer finds logic in NCA's position, other testimony describing flaws in the SNWA analysis make for a compelling argument against relying on SNWA's statistically-based results.²⁷⁷ The substantial similarity in observed water level elevation and water level response at EBM-3 compared to EH-4²⁷⁸ and limitations in relying on poor resolution water level measurements for statistical or comparative analysis²⁷⁹ requires a more inclusive approach that places the boundary to the south of the NCA production wells to a geological location that coincides with the projection of the Muddy Mountain Thrust. This more closely coincides with the measurable drop in water levels recognized to occur south of the NCA wells, between EBM-3 and BM-ONCO-1 and 2, that is indicative of a hydraulic barrier or zone of lower permeability.²⁸⁰ It also better honors the State Engineer's criteria by acknowledging the uncertainty in the data while reflecting a recognized physical boundary in the carbonate-rock aquifer. Specifically, this shall be defined to include that portion of the Black Mountains Area lying within portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; portions of Sections 1, 11, 12, 14, 22, 23, 27, 28, 33, and 34 and all of Sections 13, 24, 25, 26, 35, and 36, T.19S., R.63E., M.D.B.&M.; portions of Sections 4, 6, 9, 10, and 15 and all of Sections 5, 7, 8, 16, 17, 18, 19, 20, 21, 29, 30, and 31, T.19S., R.64E., M.D.B.&M.²⁸¹

WHEREAS, numerous participants advocated to include Kane Springs Valley in the LWRFS basins.²⁸² Other participants advocated to exclude Kane Springs Valley.²⁸³ Several expert witnesses recommended the exclusion of Kane Springs Valley based on their characterization of water level elevation data, temporal hydrographic response patterns, geochemistry, and/or the

²⁷⁶ See, Tr. 1622, 1624; NCA Closing.

²⁷⁷ See, e.g., Tr. 1467–1469 CNLV presentation, slides 21–23; Tr. 1784–1786; NV Energy presentation, slides 32–33.

²⁷⁸ NCA Closing, p. 18, Figure 3.

²⁷⁹ NCA Closing, p. 8.

²⁸⁰ See e.g., USFWS Ex. 5.

²⁸¹ See map of the LWRFS Hydrographic Basin as defined by this Order, Attachment A.

²⁸² See, e.g., NV Energy Closing, p. 2; NCA Closing, p. 10–14; MVWD Closing, p. 2–8.

²⁸³ See e.g., *Written Closing Statement of Lincoln County Water District and Vidler Water Company, Inc.* (LC-V Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 3–6; CSI Closing, p. 2.

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geophysically-inferred presence of structures that may act as flow barriers. Others recommended inclusion based on the same or similar set of information. Water level elevations observed near the southern edge of Kane Springs Valley are approximately 60 feet higher than those observed in the majority of carbonate-rock aquifer wells within the LWRFS to the south; consistent with a zone of lower permeability.²⁸⁴ Some experts suggested that the hydrographic response pattern exhibited in wells located in the southern edge of Kane Springs Valley is different compared to that exhibited in wells in the LWRFS, being muted, lagged, obscured by climate response, or compromised by low-resolution data.²⁸⁵ In this regard, the State Engineer recognizes these differences. However, he finds that the evidence and testimony supporting a similarity in hydrographic patterns and response as provided by expert witnesses, like that of the NPS, to be persuasive.²⁸⁶ Namely, that while attenuated, the general hydrographic pattern observed in southern Kane Springs Valley reflects a response to Order 1169 pumping, consistent with a close hydraulic connection with the LWRFS. The State Engineer also finds that occurrence of the carbonate-rock aquifer in the southern Kane Springs Valley indicates that there is no known geologic feature at or near the southern Kane Springs Valley border that serves to juxtapose the carbonate-rock aquifer within the LWRFS with low permeability rocks in Kane Springs Valley.²⁸⁷ He also finds that while geologic mapping²⁸⁸ indicates that the carbonate-rock aquifer does not extend across the northern portion of the Kane Springs Valley, there is insufficient information available to determine whether the non-carbonate bedrock interpreted to underlie the northern part of the Kane Springs Valley represents low-permeability bedrock that would define a hydraulic boundary to the carbonate-rock aquifer.²⁸⁹ After weighing all of the testimony and evidence relative to his criteria

²⁸⁴ LC-V Closing, p. 7.

²⁸⁵ See, e.g., LC-V Closing, pp. 5-6; LC-V Ex. 1, pp. 3-3-3-4; CSI Closing, pp. 5-6.

²⁸⁶ See Tr. 524-55. See, e.g., NPS presentation, slides 23-27.

²⁸⁷ Pursuant to the criteria requiring joint management of hydrographic basins and the sixth criteria establishing that the boundary should extend to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or where a mapped feature cannot be adequately identified, to the basin boundary, the State Engineer includes the entirety of Kane Springs Valley.

²⁸⁸ See, e.g., NSE Ex. 12; Page, W.R., Dixon, G.L., Rowley, P.D., and Brickey, D.W., 2005, *Geologic Map of Parts of the Colorado, White River, and Death Valley Groundwater Flow Systems, Nevada, Utah, and Arizona*: Nevada Bureau of Mines and Geology Map 150, Plate plus text.

²⁸⁹ See, e.g., SNWA Ex. 7, pp. 2-4, 2-5, 2-10, 2-11, and 4-1, that describe volcanic rocks as important aquifers, and calderas as both flow paths and barriers depending on structural controls

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for inclusion into the LWRFS, the State Engineer finds that the available information requires that Kane Springs Valley be included within the geographic boundary of the LWRFS.

WHEREAS, limited evidence and testimony were provided by participants advocating to either include or exclude the northern portion of Coyote Spring Valley. The State Engineer finds that while information such as that provided by Bedroc is convincing and supports a finding that local, potentially discrete aquifers may exist in parts of the northern Coyote Springs Valley, his criteria for defining the LWRFS calls for the inclusion of the entirety of the basin in the LWRFS. However, the State Engineer also acknowledges that there may be circumstances, like in the northern Coyote Spring Valley, where case-by-case considerations for proper management are warranted.

WHEREAS, evidence and testimony from Georgia-Pacific and Republic, and MBOP advocated against creating a single LWRFS administrative unit. Their arguments were principally based on concerns that there was insufficient consensus on defining the LWRFS geographic boundaries and that there were inherent policy implications to establishing an LWRFS administrative unit. MBOP recommended continuing to collect data and focusing on areas of scientific consensus. Georgia-Pacific and Republic asserted that boundaries are premature without additional data and without a legally defensible policy and management tools in place. They expressed concern that creating an administrative unit at this time inherently directs policy without providing for due process. The State Engineer has considered these concerns and agrees that additional data and improved understanding of the hydrologic system is critical to the process. He also believes that the data currently available provide enough information to delineate LWRFS boundaries, and that an effective management scheme will provide for the flexibility to adjust boundaries based on additional information, retain the ability to address unique management issues on a sub-basin scale, and maintain partnership with water users who may be affected by management actions throughout the LWRFS.

to flow, citing Peter D. Rowley, and Dixon, G.L., 2011, *Geology and Geophysics of Spring, Cave, Dry Lake, and Delamar Valleys, White Pine and Lincoln Counties, and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Flow Systems*,.

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WHEREAS, evidence and testimony support the delineation of a single hydrographic basin as originally defined by the State Engineer in Interim Order 1303, with the adjustment of the Black Mountain Area boundary and the addition of Kane Springs Valley. The State Engineer acknowledges that special circumstances will exist with regard to both internal and external management. Water development both inside and outside of the perimeter of the LWRFS will continue to be evaluated on the best available data and may become subject to or excluded from the constraints or regulations of the LWRFS.

WHEREAS, the geographic extent of the LWRFS is intended to represent the area that shares both a unique and close hydrologic connection and virtually all of the same source and supply of water, and therefore will benefit from joint and conjunctive management. In that light, the State Engineer recognizes that different areas, jointly considered for inclusion into the LWRFS, have been advocated both to be included and to be excluded by the different hearing participants based on different perspectives, different data subsets, and different criteria. For the Muddy River Springs Area, California Wash, Garnet Valley, Hidden Valley, Coyote Spring Valley, and a portion of the Black Mountain Area, there is a persuasive case previously laid out in Rulings 6254–6261, and the consensus amongst the participants support their inclusion in the LWRFS. For other sub-basins such as Kane Springs Valley and the area around the NCA production wells in the Black Mountain Area, there is persuasive evidence to support their inclusion or exclusion; however, the State Engineer's criteria and available data mandate their inclusion. Their inclusion in the LWRFS provides the opportunity for conducting additional hydrologic studies in sub-basins such as these, to determine the degree to which water use would impact water resources in the LWRFS and to allow continued participation by holders of water rights in future management decisions. Thus, these sub-basins, and any other portions of the LWRFS that may benefit from additional hydrological study, can be managed more effectively and fairly within the LWRFS. For other basins whose inclusion was advocated, such as the northern portion of Las Vegas Valley and the Lower Meadow Valley Wash, the State Engineer finds that data do not exist to apply his criteria, and therefore they cannot be considered for inclusion into the LWRFS. These types of areas may require additional study and special consideration regarding the potential effects of water use in these areas on water resources within the LWRFS.

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VII. AQUIFER RECOVERY SINCE COMPLETION OF THE ORDER 1169 AQUIFER TEST

WHEREAS, during the Order 1169 aquifer test an average of 5,290 afa were pumped from the carbonate-rock aquifer wells in Coyote Spring Valley and a cumulative total of 14,535 afa were pumped throughout the Order 1169 study basins. A portion of this total, approximately 3,840 acre-feet per year, was pumped from the alluvial aquifer in the Muddy River Springs Area.²⁹⁰ In the years since completion of the Order 1169 aquifer test, pumping from wells in the LWRFS has gradually declined.²⁹¹ Pumping in 2013-2014 averaged 12,635 afa; pumping in 2015-2017 averaged 9,318 afa.²⁹² Pumpage inventories for 2018 that were published after the completion of the hearing report a total of 8,300 afa.²⁹³ Pumping from alluvial aquifer wells in the Muddy River Spring Area has consistently declined since closure of the Reid Gardner power plant beginning in 2014, while pumping from the carbonate-rock aquifer since the completion of the aquifer test has consistently ranged between approximately 7,000 and 8,000 afa.

WHEREAS, the information obtained from the Order 1169 aquifer test and in the years since the conclusion of the test demonstrates that while, following conclusion of the aquifer test, there was a recovery of groundwater levels, the carbonate-rock aquifer has not recovered to pre-Order 1169 test levels.²⁹⁴ Evidence and testimony submitted during the 2019 hearing does not refute the conclusions made by the State Engineer in Rulings 6254–6261 regarding interpretations of the Order 1169 aquifer test results, which were based on observations and analysis by multiple technical experts. Groundwater level recovery reached completion approximately two to three years after the Order 1169 aquifer test pumping ended.²⁹⁵

²⁹⁰ NSE Ex. 1, p. 4.

²⁹¹ See, e.g., NSE Ex. 50, *Pumpage Report Coyote Spring Valley 2017*; NSE Ex. 67, *Pumpage Report Black Mountains Area 2017*; NSE Ex. 84, *Pumpage Report Garnet Valley Area 2017*; NSE Ex. 86, *Pumpage Report California Wash Area 2017*; Ex. 88, *Pumpage Report Muddy River Springs Area 2017*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

²⁹² *Id.*

²⁹³ *Id.*

²⁹⁴ See, e.g., SNWA Ex. 7, pp. 5-17–5-18, 8-2; NPS Closing, p. 4; MVWD Closing, p. 8. See also Tr. 1807; NV Energy presentation, p. 11.

²⁹⁵ SNWA Ex. 7, pp. 5-17–5-18; NVE Ex. 1, p. 2

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WHEREAS, several participants testified about the effects of drought and climate on the recovery of groundwater levels and spring discharge after the Order 1169 aquifer test. Droughts, or periods of drier than normal conditions that last weeks, months, or years can lead to declines in groundwater levels.²⁹⁶ The LWRFS is within National Oceanic and Atmospheric Administration's Nevada Climate Division 4 (Division 4). Precipitation records for Division 4 from 2006 to the 2019 season records indicate that 10 of those 14 seasons received lower than average precipitation.²⁹⁷ Despite low precipitation, several participants submitted evidence that water levels continue to rise under current climate conditions in other areas with a relative lack of pumping that are tributary to the LWRFS, such as Dry Lake Valley, Delamar Valley, Garden Valley, Tule Desert, Dry Lake Valley, and other areas.²⁹⁸ These rises have been attributed to efficient winter recharge that has occurred despite low cumulative precipitation.²⁹⁹ Based on these observations, it was argued that the continued stress of pumping in the LWRFS carbonate-rock aquifer is limiting the recovery of water levels.³⁰⁰ The State Engineer acknowledges that spring discharge is affected by both pumping and climate, and finds that groundwater levels remain a useful tool for monitoring the state of the aquifer system in the LWRFS regardless of the relative contribution of climate and drought to the measured groundwater levels. The State Engineer only has the authority to regulate pumping, not climate, in consideration of its potential to cause conflict or to be detrimental to the public interest and must do so regardless of the relative contributing effects of climate.

WHEREAS, evidence and testimony during the 2019 hearing was divided on whether water levels in the Warm Springs area and carbonate-rock aquifer indicate the system has reached or is approaching equilibrium,³⁰¹ or is still in a state of decline.³⁰² Hydrographs and evidence presented show that water levels at well EH-4 near the Warm Springs area have been relatively stable for several years following recovery from the Order 1169 aquifer test.³⁰³ However, other

²⁹⁶ See USGS, 1993, *Drought*, US Geological Survey Open File Report 93-642, accessible at <https://bit.ly/93-642>, (last accessed June 6, 2020).

²⁹⁷ SNWA Ex. 7, pp. 4-1-4-4.

²⁹⁸ Tr. 577, 304-307.

²⁹⁹ NPS Ex. 3, Appendix A.

³⁰⁰ See, e.g., SNWA Closing, p. 11. NPS Closing, p. 4. See also Tr. 642, 644-45, 1545.

³⁰¹ MVWD Closing, pp. 8-9. See also NV Energy Closing, p. 3; CNLV Closing, pp. 5-7.

³⁰² SNWA Closing, pp. 11-12. NPS Closing, pp. 4-5.

³⁰³ SNWA Ex. 7, pp. 5-7.

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carbonate-rock aquifer wells located further away from the Warm Springs area such as CSVM-1, TH-2, GV-1, and BM-DL-2 appear to have reached peak recovery from the Order 1169 aquifer test in 2015-2016 and have exhibited downward trends for the past several years.³⁰⁴ The State Engineer agrees that water levels in the Warm Springs area may be approaching steady state with current pumping conditions. However, the trend is of insufficient duration to make this determination with absolute assurance and continued monitoring is necessary to determine if this trend continues or if water levels are continuing to decline slowly.

VIII. LONG-TERM ANNUAL QUANTITY OF WATER THAT CAN BE PUMPED

WHEREAS, the evidence and testimony presented at the 2019 hearing did not result in a consensus among experts of the long-term annual quantity of groundwater that can be pumped. Recommendations range from zero to over 30,000 afa, though most experts agreed that the amount must be equal to or less than the current rate of pumping. There is a near consensus that the exact amount that can be continually pumped for the long-term cannot be absolutely determined with the data available and that to make that determination will require more monitoring of spring flows, water levels, and pumping amounts over time.

WHEREAS, evidence and testimony were presented arguing that the regional water budget demonstrates that far more groundwater is available for development within the LWRFS than is currently being pumped. CSI argues that the total amount of groundwater available for extraction from the LWRFS may be up to 30,630,³⁰⁵ which is an estimate of the entirety of natural discharge from the system that occurs through groundwater evapotranspiration and subsurface groundwater outflow. Nearly all other experts disagreed that pumping to that extent could occur without causing harm to the Moapa dace or conflict with senior Muddy River decreed rights. The disagreement is not about the amount of the water budget, but rather the importance of the water budget in determining the amount of groundwater in the LWRFS that can continually be pumped,³⁰⁶ not the amount of inflow and outflow to the system. In addition, availability of groundwater for pumping based on water budget should consider whether the same water is appropriated for use in upgradient and downgradient basins, and CSI did not account for this.

³⁰⁴ *Id.*

³⁰⁵ CSI Closing, p. 2.

³⁰⁶ See e.g., SNWA Ex. 9, p. 24.; MVWD Ex. 3, p. 4; NPS Ex. 3, p. 23.

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The State Engineer recognizes that the water budget is important to fully understand the hydrology of the regional flow system but also agrees with nearly all participants that the regional water budget is not the limiting measure to determine water available for development in the LWRFS. The potential for conflict with senior rights and impacts that are detrimental to the public interest in the LWRFS is controlled by aquifer hydraulics and the effect of pumping on discharge at the Warm Springs area rather than the regional water budget.

WHEREAS, evidence and testimony were presented arguing that the location of pumping within the LWRFS is an important variable in the determination of the amount that can be pumped. Participants representing groundwater users in Garnet Valley and the APEX area at the south end of the LWRFS testified that pumping within Garnet Valley does not have a discernable signal at wells near the Warm Springs area and that the hydraulic gradient from north-to-south within the LWRFS indicates that there is a component of groundwater flow in Garnet Valley that does not discharge to the Warm Springs area.³⁰⁷ Several participants agreed that moving pumping to more distal locations within the LWRFS will lessen the effect of that pumping on spring flows. NV Energy testified that there would be a lesser effect because pumping areas around the periphery of the main carbonate-rock aquifer are less well-connected to the springs, and because of the likelihood that some amount of subsurface outflow occurs along and southern and southeastern boundary of the LWRFS and it is possible to capture some of that subsurface outflow without a drop-for-drop effect on discharge at the Warm Springs area.³⁰⁸ Others drew the same conclusion based on their review of the data and characterization of a heterogeneous system³⁰⁹ or on weak connectivity between peripheral locations and the Warm Springs area.³¹⁰

CSI argues that more groundwater development can occur in the LWRFS because subsurface fault structures create compartmentalization and barriers to groundwater flow that reduce the effects of pumping on discharge at the Warm Springs area.³¹¹ They rebut the contention by others that spring flow is affected homogeneously by pumping within the LWRFS.³¹² CSI used geophysical data to map a north-south trending subsurface feature that bisects Coyote Spring

³⁰⁷ See CNLV Ex. 3, pp. 45–47; GP-REP Ex. 1, pp. 2–3.

³⁰⁸ NVE Ex. 1, pp. 8–9.

³⁰⁹ See e.g. MBOP Ex. 2, p. 23; GP-REP Ex. 2, pp. 4–5. See also Technichrome Response.

³¹⁰ See e.g. NCA Closing, pp. 2–10; LC-V Closing, pp. 4–6; Bedroc Closing, pp. 9–11.

³¹¹ CSI Closing, pp. 2–5.

³¹² CSI Ex. 2, pp. 40–41.

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Valley. They hypothesize that this structure is an impermeable flow barrier that creates an isolated groundwater flow path on the west side of Coyote Spring Valley from which pumping would capture recharge from the Sheep Range without spring flow depletion at the Warm Springs area.³¹³ MBOP also contends that the system is far too complex to characterize it as a homogeneous “bathtub” and that preferential flow paths within the region mean that pumping stress will greatly differ within the LWRFS depending on where the pumping occurs.³¹⁴ Rebuttals to MBOP and CSI contend that an emphasis on complexities in geologic structure is a distraction from the question at hand, and that the hydraulic data collected during and after the Order 1169 aquifer test clearly demonstrate close connectivity and disproves CSI’s hypothesis.³¹⁵

The State Engineer finds that the data support the conclusion that pumping from locations within the LWRFS that are distal from the Warm Springs area can have a lesser impact on spring flow than pumping from locations more proximal to the springs. The LWRFS system has structural complexity and heterogeneity, and some areas have more immediate and more complete connection than others. For instance, the Order 1169 aquifer test demonstrated that pumping 5,290 afa from carbonate-rock aquifer wells in Coyote Spring Valley caused a sharp decline in discharge at the springs, but distributed pumping since the completion of the aquifer test in excess of 8,000 afa has correlated with a stabilization of spring discharge. The data collected during and after the Order 1169 aquifer test provide substantial evidence that groundwater levels throughout the LWRFS rise and fall in common response to the combined effects of climate and pumping stress, which controls discharge at the Warm Springs area.³¹⁶ The State Engineer finds that the best available data do not support the hypotheses that variable groundwater flow paths and heterogeneous subsurface geology are demonstrated to exist that create hydraulically isolated compartments or subareas within the LWRFS carbonate-rock aquifer from which pumping can occur without effect on the Warm Springs area. However, there remains some uncertainty as to the extent that distance and location relative to other capturable sources of discharge either delay, attenuate, or reduce capture from the springs.

³¹³ *Id.* See also CSI Ex. 1, pp. 31–40.

³¹⁴ MBOP Closing, p. 7.

³¹⁵ See e.g., SNWA Ex. 9, pp. 23–24.

³¹⁶ NSE Exs. 15–21.

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WHEREAS, evidence and testimony were presented to argue that no amount of groundwater can be pumped from the carbonate-rock aquifer or from the LWRFS without conflicting with the Muddy River decree or causing harm to the Moapa dace habitat. This argument is predicated on the interpretation that lowering of groundwater level anywhere within the LWRFS, whether caused by climate or pumping, eventually has an effect on spring discharge, and that any reduction in spring discharge caused by pumping conflicts with senior decreed rights or harms the Moapa dace or both.³¹⁷ MVIC and SNWA agree that capturing discharge from the Warm Springs area springs and the Muddy River are a conflict with the Muddy River decree, which appropriates “all of the flow of the said stream, its sources of supply, headwaters and tributaries.”

The Muddy River Decree was finalized in 1920, decades before any significant amount of groundwater development within the Muddy River springs area or the LWRFS. The statement quoted above, or something similar to it, is a common conclusion in decrees to establish finality to the determination of relative priority of rights. By including this statement, the decreed right holders are afforded the assurance that no future claimants will interject a new priority right. However, it is also common on decreed systems for junior rights to be appropriated for floodwater or other excess flows, provided that no conflict occurs with the senior priorities. Similarly, groundwater development almost always exists in the tributary watersheds of decreed river systems, even though groundwater in a headwater or tributary basin is part of the same hydrologic system. There is no conflict as long as the senior water rights are served.

The State Engineer disagrees with SNWA and MVIC that the above quoted statement in the decree means that any amount of groundwater pumped within the headwaters that would reduce flow in the Muddy River conflicts with decreed rights. The State Engineer finds that capture or potential capture of the waters of a decreed system does not constitute a conflict with decreed right holders if the flow of the source is sufficient to serve decreed rights. Muddy River decreed rights were defined by acres irrigated and diversion rates for each user.³¹⁸ The sum of diversion rates greatly exceeds the full flow of the River, but all users are still served through a rotation schedule managed by the water master. The total amount of irrigated land in the decree is 5,614 acres.³¹⁹

³¹⁷ See, e.g., CBD Ex. 3, p. 23; SNWA Ex. 7, p. 8-4; MVIC Ex. 1, p. 3.

³¹⁸ NSE Ex. 333.

³¹⁹ *Id.*

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Flow in the Muddy River at the Moapa Gage has averaged approximately 30,600 afa since 2015,³²⁰ which is less than the predevelopment baseflow of about 33,900.³²¹ If all decreed acres were planted with a high-water use crop like alfalfa, the net irrigation water requirement would be 28,300 afa, based on a consumptive use rate of 4.7 afa.³²² Conveyance loss due to infiltration is an additional consideration to serve all decreed users; however, this is limited in the Muddy River because the alluvial corridor is narrow and well defined so water stays within the shallow groundwater or discharges back to the river. The State Engineer finds that the current flow in the Muddy River is sufficient to serve all decreed rights in conformance with the Muddy River Decree, and that reductions in flow that have occurred because of groundwater pumping in the headwaters basins is not conflicting with Decreed rights.

WHEREAS, the majority of experts agree that there is an intermediate amount of pumping approximated by recent pumping rates that can continue to occur in the LWRFS and still protect the Moapa dace and not conflict with decreed rights. USFWS and NCA endorsed the use of average pumping over the years 2015-2017 (9,318 afa as reported by State Engineer pumpage inventories) as a supportable amount that can continue to be pumped, because the system appears to have somewhat stabilized.³²³ CSI also endorsed this approach as an initial phase, though they suggested 11,400 afa, which was the average pumping reported by State Engineer inventories over the years 2010-2015 that included the period of the Order 1169 aquifer test.³²⁴ CNLV makes a rough estimate that no more than 10,000 afa can be supported throughout the entire region, based on their professional judgment and review of the data.³²⁵ NV Energy concludes that 7,000–8,000 afa can continue to be pumped, based on the amount of pumping in recent years from carbonate-rock aquifer wells and the observation that steady-state conditions in Warm Springs area spring

³²⁰ NSE Ex. 211, *USGS 09416000 Muddy River Moapa 1914-2013*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

³²¹ SNWA Ex. 7, p. 5-4.

³²² See, e.g., Huntington, J.L. and R. Allen, (2010), *Evapotranspiration and Net Irrigation Water Requirements for Nevada*, Nevada State Engineer's Office Publication, accessible at <https://bit.ly/etniwr>, (last accessed June 7, 2020), official records of the Division of Water Resources.

³²³ USFWS Ex. 5, p. 3; NCA Ex. 1, p. 19.

³²⁴ CSI Closing, p. 2.

³²⁵ CNLV Ex. 3, p. 2.

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flow are being reached.³²⁶ SNWA estimates that only 4,000–6,000 afa of carbonate-rock aquifer pumping can continually occur within the LWRFS.³²⁷

WHEREAS, the State Engineer finds that the evidence and testimony projecting continual future decline in spring flow at the current rate of pumping is compelling but not certain. Several participants pointed out rising trends in groundwater levels at many locations in Southern Nevada, outside of the LWRFS, that are distant from pumping³²⁸ even though total precipitation has been below average and since 2006 has been described as a drought.³²⁹ This suggests that climate and recharge efficiency may have actually buffered the full effect of pumping on discharge at the Warm Springs area, and that the system could not support the current amount of groundwater pumping during an extended dry period with lesser recharge. In addition, slight declining trends that are observed in Garnet Valley monitoring wells are not evident in wells close to the Warm Springs area.³³⁰ If drawdown in Garnet Valley has not yet propagated to the Muddy Springs area, then the resilience of the apparent steady state of spring flow is in doubt. Projections of continued future decline in spring discharge suggests that the current amount of pumping in the LWRFS is a maximum amount that may need to be reduced in the future if the stabilizing trend in spring discharge does not continue.

WHEREAS, there is an almost unanimous agreement among experts that data collection is needed to further refine with certainty the extent of groundwater development that can be continually pumped over the long term. The State Engineer finds that the current data are adequate to establish an approximate limit on the amount of pumping that can occur within the system, but that continued monitoring of pumping, water levels, and spring flow is essential to refine and validate this limit.

³²⁶ NVE Ex. 1, p. 8.

³²⁷ SNWA Ex. 7, p. 8-4.

³²⁸ NPS Ex. 3, Appendix A. *See also* Tr. 304–307, 577.

³²⁹ Tr. 1292–1300. *See, also* LC-V Ex. 11, *PowerPoint Presentation of Todd G. Umstot, entitled Drought and Groundwater*, Hearing on Interim Order 1303, official records of the Division of Water Resources, slides 3–10.

³³⁰ CNLV Ex. 3, pp. 45–46.

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WHEREAS, pumping from wells in the LWRFS has gradually declined since completion of the Order 1169 aquifer test and is approaching 8,000 afa. This coincides with the period of time when spring discharge may be approaching steady state. The State Engineer finds that the maximum amount of groundwater that can continue to be developed over the long term in the LWRFS is 8,000 afa. The best available data at this time indicate that continued groundwater pumping that consistently exceeds this amount will cause conditions that harm the Moapa dace and threaten to conflict with Muddy River decreed rights.

IX. MOVEMENT OF WATER RIGHTS

WHEREAS, the data and evidence are clear that location of pumping within the LWRFS relative to the Warm Springs area and the Muddy River can influence the relative impact to discharge to the Warm Springs area and/or senior decreed rights on the Muddy River. The transfer of groundwater pumping from the Muddy River Springs Area alluvial wells to carbonate-rock aquifer wells may change the timing of any impact to Muddy River flows and amplify the effect on discharge to the Warm Springs area, thus potentially adversely impacting habitat for the Moapa dace. And the transfer of groundwater withdrawals from the carbonate-rock aquifer into the Muddy River alluvial aquifer may reduce the impact to the Moapa dace habitat but increase the severity of impact to the senior decreed rights on the Muddy River. The State Engineer recognizes that the LWRFS is fundamentally defined by its uniquely close hydrologic interconnection and shared source and supply of water. However, the State Engineer also recognizes that there can be areas within the LWRFS that have a greater or lesser degree of hydraulic connection due to distance, local changes in aquifer properties, or proximity to other potential sources of capturable water.

WHEREAS, Rulings 6254–6261 acknowledge that one of the main goals of Order 1169 and the associated pumping test at well MX-5 was to observe the effects of increased pumping on groundwater levels and spring flows. Coyote Spring Valley carbonate-rock aquifer pumping during the Order 1169 aquifer test was the largest localized carbonate-rock aquifer pumping in the LWRFS. In addition, concurrent carbonate-rock aquifer and alluvial aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash, and the northwest portion of the Black Mountains Area occurred during the test period. Rulings 6254–6261 described the data and analysis used to determine that additional pumping at the MX-5 well contributed significantly to decreases in high elevation springs (Pederson Springs) and other springs that are the sources to the

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Muddy River. Evidence and reports provided under Interim Order 1303 do not challenge the findings in Rulings 6254–6261 that pumping impacts were witnessed. There is a strong consensus among participants that pumping during the Order 1169 aquifer test along with concurrent pumping caused drawdowns of water levels throughout the LWRFS.³³¹ However, the effects of pumping from different locations within the LWRFS on discharge at the Warm Springs area is not homogeneous.³³² The State Engineer finds that movement of water rights that are relatively distal from the Warm Springs area into carbonate-rock aquifer wells that have a closer hydraulic connection to the Warm Springs area is not favorable.

WHEREAS, evidence and testimony provided by participants during the Interim Order 1303 hearing provides a strong consensus that alluvial aquifer pumping in the Muddy River Springs Area affects Muddy River discharge.³³³ There is also strong evidence that carbonate-rock aquifer pumping throughout the LWRFS affects spring flow but can also be dependent on proximity of pumping to springs.³³⁴ No participant is a proponent of moving additional water rights closer to the headwaters of the Muddy River within the Muddy River Springs Area, and most participants agree that carbonate-rock aquifer and alluvial aquifer pumping in the Muddy River Springs Area captures Muddy River flow. The State Engineer finds that any pumping within close proximity to the Muddy River could result in capture of the Muddy River. The State Engineer also finds that any movement of water rights into carbonate-rock aquifer and alluvial aquifer wells in the Muddy River Springs Area that may increase the impact to Muddy River decreed rights is disfavored.

WHEREAS, the Order 1169 aquifer test demonstrated that impacts from the test along with concurrent pumping was widespread within the LWRFS encompassing 1,100 square miles and supported the conclusion of a close hydrologic connection among the basins.³³⁵ While the effects of movement of water rights between alluvial aquifer wells and carbonate-rock aquifer wells on deliveries of senior decreed rights to the Muddy River or impacts to the Moapa dace may not be uniform across the entirety of the LWRFS, the relative degree of hydrologic connectedness

³³¹ See SNWA Closing, pp. 10, 16; MVIC Closing, p. 6.

³³² See, e.g., SNWA Closing, p. 10.

³³³ CNLV Closing, p. 8; Tr. 1456–1457, 1458. See also SNWA Closing, p. 16; MVWD Closing, p. 11; MVIC Closing, p. 6.

³³⁴ CNLV Closing, pp. 8–10; Tr. 1457, 1458; NV Energy Closing, p. 4; MVIC Closing, p. 6.

³³⁵ NSE Ex. 256. See also NSE Ex. 14, pp. 20–21; NSE Ex. 17, p. 19; SNWA Closing pp. 2, 3.

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in the LWRFS will be the principle factor in determining the impact of movement of water rights. The State Engineer recognizes that there may be discrete, local aquifers within the LWRFS with an uncertain hydrologic connection to the Warm Springs area. Determining the effect of moving water rights into these areas may require additional scientific data and analysis. Applications to move water rights under scenarios not addressed in this Order will be evaluated on their individual merits to determine potential impact to existing senior rights, potential impact to the Warm Springs area and Moapa dace habitat, and impacts to the Muddy River.

X. ORDER

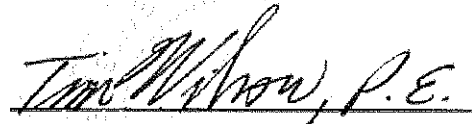
NOW THEREFORE, the State Engineer orders:

1. The Lower White River Flow System consisting of the Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area as described in this Order, is hereby delineated as a single hydrographic basin. The Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area are hereby established as sub-basins within the Lower White River Flow System Hydrographic Basin.
2. The maximum quantity of groundwater that may be pumped from the Lower White River Flow System Hydrographic Basin on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa and may be less.
3. The maximum quantity of water that may be pumped from the Lower White River Flow System Hydrographic Basin may be reduced if it is determined that pumping will adversely impact the endangered Moapa dace.
4. All applications for the movement of existing groundwater rights among sub-basins of the Lower White River Flow System Hydrographic Basin will be processed in accordance with NRS 533.370.

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5. The temporary moratorium on the submission of final subdivision or other submission concerning development and construction submitted to the State Engineer for review established under Interim Order 1303 is hereby terminated.
6. All other matters set forth in Interim Order 1303 that are not specifically addressed herein are hereby rescinded.



TIM WILSON, P.E.

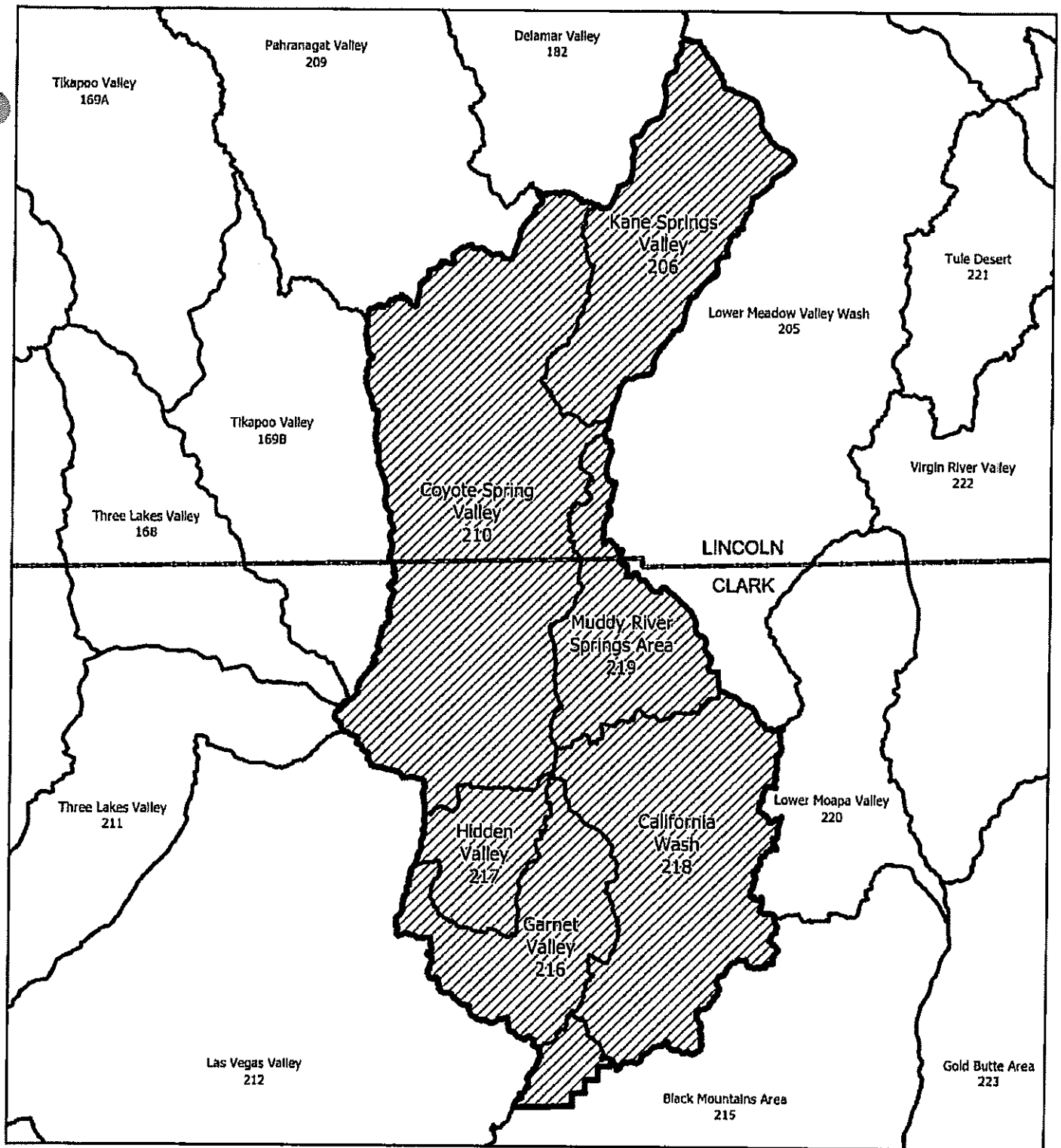
State Engineer

Dated at Carson City, Nevada this

15th day of June, 2020.

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ATTACHMENT A



Location and Extent of LWRFS Hydrographic Basin,
Clark and Lincoln Counties, Nevada

State of Nevada
Department of Conservation and
Natural Resources
Office of the State Engineer
Division of Water Resources

Tim Wilson, P.E.
State Engineer

June 2020



- LWRFS Boundary
- Hydrographic Basin Boundary
- County Boundary

